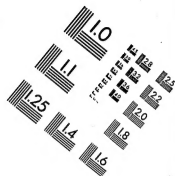
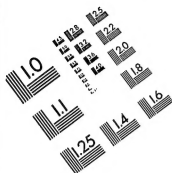




Association for
Information and Image
Management

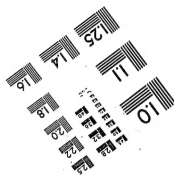
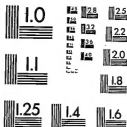
MS303-1980



Centimeter



Inches



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A SELECTIVE MICROFILM EDITION

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Frederick, Maryland
1987

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at
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18 June 1981

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44

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THOMAS A. EDISON PAPERS
A SELECTIVE MICROFILM EDITION
PART II
(1879-1886)

REEL 44

NOTEBOOK SERIES (NBK-22)

Pocket Notebooks (continued)

Technical Scrapbooks

Unbound Notes and Drawings

Pocket Notebook, PN-78-02-24

This pocket notebook was kept by Charles Batchelor during the period February 1878-January 1879. The book contains entries relating to items, primarily telephones and phonographs, that were made at the laboratory and shipped to various companies and individuals. The front cover is inscribed "Work turned out of Edison's Laboratory During 1878." The pages are unnumbered. Only 14 pages have been used.

1. Model for Comparison

Patent Office Model

1	For telephone connection
---	--------------------------

2 For telephone application

1	For Tel. Call
---	---------------

1 For Photograph

2. For Aerophone

We have made inventory				Apr 28 James Adams			
9	Large Cylinder	-			took to England		
	Phonograph			2	Smaller Baskets		
Ans 11	Small disk	-		2	Relay "		
				6	Receivers		
				1	Receiver left here		
				5	Transmitters		
				1	lost when Lardner's Cried		
					on Base		
				12	Cords for telephones		
				Apr 28 James Adams			
				2	Small Phonographs		
					in boxes		

H. Bentley, Philadelphia	Apr 10 1898	Mr. Puskas, London
2 Pine Sounder brackets	4 Cast Iron transmitters	
2 Transmitters	for telephone	
1 Cut transmitter	4 Sounder brackets ditto	
2 Cords	2 Relay " "	
11 H. Preece	2 Nickel and Steel " "	
1 Cut Transmitter	6 Receivers for " "	
	15 <u>Telephone cords</u>	
Apr 8 " H. V. Tel. Co. Adirondack N.Y.	Apr 10 1898	James Adam, London
1 Sounder bracket	1 Small transmitter	
1 Cast Iron transmitter	not adjustable	
1 Receiver		
1 Unidirectional Transmitter		
1 Induction coil	Apr 11 1898	Gen. T. Barker
3 Cords for telephones	Philadelphia	
Apr 14 1898 H. Bentley, Phil.	1 Transmitter	
1 Cast Iron Transmitter	1 Receiver 8 Mils. Int. post	
2 Nickel receivers	1 Coil on base	
3 Cords for same		

1898	Apr 16	Off. Gen. ^{Sanchez} Sanchez		Apr 27			
		2 Cords in box for			1 Small transmitter given		
		Racheter to take to			with Phelps for mail.		
		Washington					
		1 Long Monograph to		Apr 30	1 Model transmitter		
		Johnson in box			and		
		Edwards private use			26 Carbons pressed		
1898	Apr 23			May 3	12 Carbons pressed		
		2 Small transmitters			sent to Dr. Barker		
		48 Carbons pressed		May 7	1 Cylinder Mains		
		Sent to Adams in			4 Tel. transmitters		
		England by			72		
		Col. G. B. Jourard			4 Tel. Receivers		
1898	Apr 26				all 10 cords		
		1 Rubber transmitter and			4 Cords		
		left with Sanchez			with neck for holding		
					transmitters in bags		
					to Panama		

May 10	2 New Trans.				June 6 th	Dr Barker			
	2 " Receivers					1 Good Rubber Trans. mkt			
	2 Cords with brass teleph. stands					2 unframed			
	4 Cords. Sent to Bentley					7 Carbon buttons			
May 24	2 New Trans.					Robertson Phil.			
	2 " Receivers					2 receiver bands			
	2 bases with telephonic brackets on				June 17	G. M. Phelps			
	4 Cords				Paul	100 Carbon buttons and drawers for them			
	2 Small Drums					200 silks			
	Sent to Gold & Lock del. Co.				June 7	Western Electric Mfg. Co.			
25	2 new adjusters					2 Model transmitters			
	Transmitters in place of former 2					1 Carb. box with			
					June 12	Frank W. Laughlin			
						2 New large Phonographs			
						12 Springs. 20" in. for			

June 15 N. & Mfg. Co.
20 Carbons
21 LK disc

Prof Langley
10 Carbons
Allegheny Pa

Made one Quadruplex
resistance balance

June 17 4 Transmitters
4 Cals mounted on
bases without swifter

18 1 Coil mounted on base
without switch to
St. Barker
also 1 Pressure relay.

15 2.2. Paul & Co. ^{Ben Rapp}
1 Model Monographs

18	E. H. Johnson		
	1 double mouth piece		

19 Gold ~~W~~ ~~Stock~~ tel. Co
2 ~~Interconnected~~
2 ~~Gold~~ ~~reconnected~~ without
~~switches~~

July 3.	2 Transmitters
	1 Pressure recd
old	1 Key

1 Souder
32 Carbons
1 box silk (2)

Francis Bechet

July 27. Made new Blaylock
for Patrick Bath
uplaved

Out & Carter Telephone
Bath Bound to Pen Office

W. H. Painter Wash
1 Pair 7-telephone

Get Pair for 7-telephone
on W. H. Jones

In. Sent Pool Phon
to Geo W. Barker

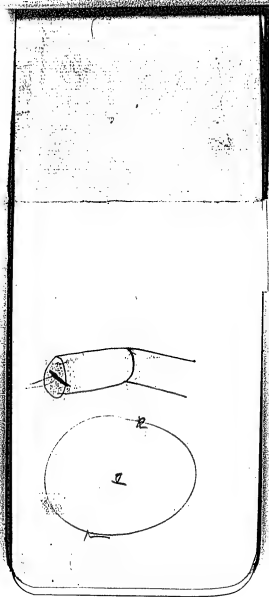
H. Johnson
Fixed pair of micrograph
Receivers Bell and
Connections

Nov 26 1899
W. H. Barker
One Iron Phonograph

One Iron Phon
to Laykes

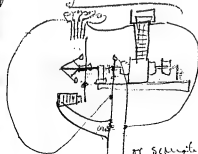
Pocket Notebook, PN-82-04-01

This pocket notebook covers the period April 1882-April 1883. The entries are by Edison and consist of notes and drawings relating to dynamos and dynamo regulators, a lamp caveat, an autographic telegraph, and a process for making glue from a plant. Included also are miscellaneous calculations, a memorandum about the stock of various companies, a list of cities in Latin America, and a few notes by Edison to himself. The pages are unnumbered. Approximately 75 pages have been used.



April 1. 1882

Patent
Wind, 2 armature with
fine wire for 6 arc lights
in series & extra winding
for A lights =



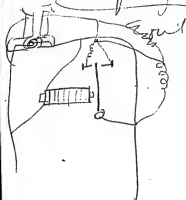
or separate
run with belt.

Patent
Recd -

April 1 1882

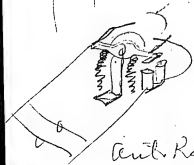
The bush like growth
in tropical sea that is
coated with flesh color
lime & which is of
animal origin appearing
like ~~horn~~ When burnt
smells like burnt horn
I propose to make into
glue, after collecting
from the ~~sea~~ sea it
is dried put into a
tumbling barrel
with iron peeces
& fired from lime

it is then cut up
breaded in the reg.
manner for glaci.



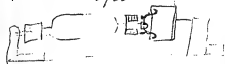


April 3 1882
10.5



Ant. Reg

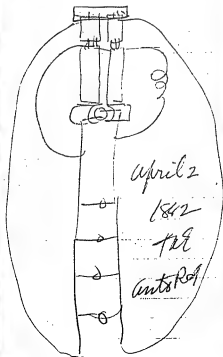
Jul 3
1882.
+220

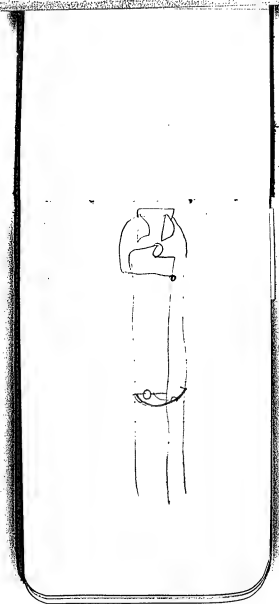


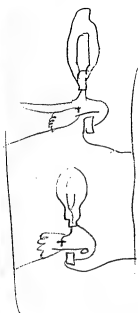
Magnet on shaft.
Serves as mag. lamp
one part of the circuit
from the battery in down
pulley & shaft head
prevents drop
of EMF -

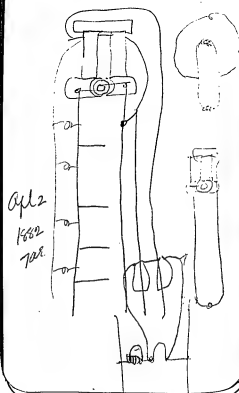
Auto Reg

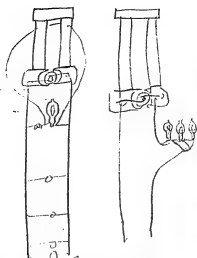




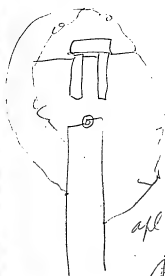








Auto Reg
Apr 4 1882
728



apl 2 1552
722





apl 2
1882
tar

$\frac{1}{10}$

2

4

8

1.6

3.2

100

50

25

12

6

3

1

2

4

8

16

32

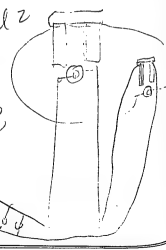
2.5

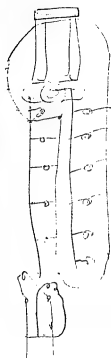
1.25

April 2

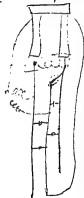
1582

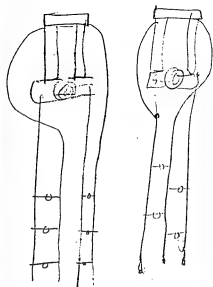
748



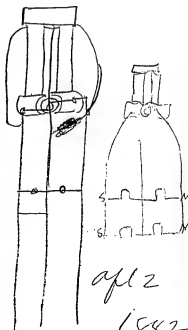


upl 2
1882
TAE





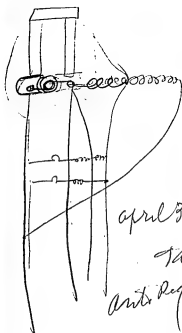
apl 2 1882
708



apl 2

1882

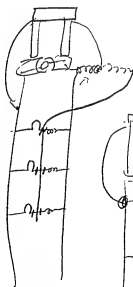
TH 2



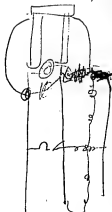
April 9 1864

729

Ants Reg



apl 2
1882
7ae





Inside roll of wet
paper cover on pallet
in Runny Trainmill
Apr. 2 1882

Autographs try
~~double~~ double
paper. Starch between
or other substance
outside paper to be
thin & glossy
this will do the
biz for indentation

Apr 2 1882

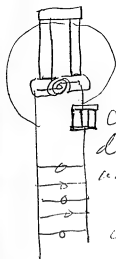
J. A. E.

asked Ebert
for a standard
table ~~to show~~
figure out a
duplex for analog.

\$25 per year each
guarantee.

300, if they use
10.

\$4000 per year if
they don't use at
all for Central paper



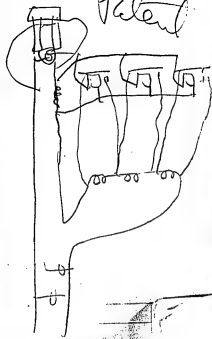
Carbon rods
dec res by
addition lamp

Sept 2

1882

424

Patent



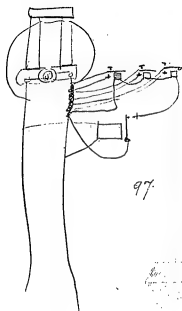
$$\begin{array}{r} 50000. \\ 100000 \\ \hline 150000 \end{array}$$

$$\begin{array}{r} 84000 \\ 36000 \\ \hline 120000 \\ 5000 \\ \hline 125000. \\ 2000 \\ \hline 127000. \\ 18000 \\ \hline 145000 \\ 10000 \\ \hline 155000 \end{array}$$

$$\begin{array}{r} 210000 \\ 3 \overline{) 720000} \\ \underline{75333} \\ 750000 \end{array}$$

$$\begin{array}{r} 1506 \\ 65 \\ \hline 7530 \\ 45300 \\ \hline 97830 \end{array}$$

April 5 1882 TAE.

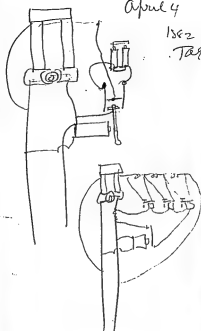


7-10-1882

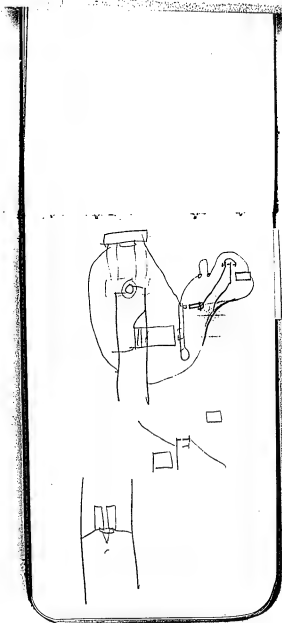
April 4

1882

Tae



7-2-1941



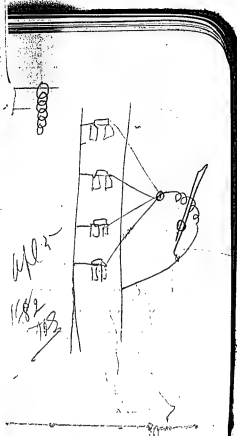
Caper:

Patent Ann. for 1890
Copy of Harpers
Clarke has done
made a drawing for

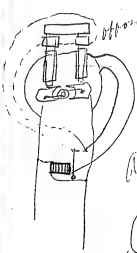
Art. Sec. of 1890
and 1891 of 1890

also Clarke's report
how test recent

also Clarke's report
of 1890



4/12
1/82
1/82



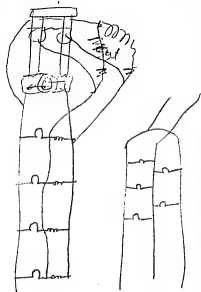
offered

4/12
1/82
1/82

Auto Reg

$$\begin{array}{r}
 40 \\
 90 \\
 \hline
 130 \\
 30 \\
 \hline
 160
 \end{array}$$

160



Apr 5 1880
1880



Ant. Reg.
 Apr 5 1882
 -700

of Cambridge
University
Library
Cambridge

$$\begin{array}{r}
 3619 \\
 8/6210/328 \\
 \underline{887} \\
 58 \\
 135 \\
 188 \quad 823 \quad 845 \\
 \underline{12} \quad \quad \quad \underline{823} \quad 1 \\
 \quad \quad \quad \quad \quad \quad 345
 \end{array}$$

$$\begin{array}{r}
 19/6215/328 \\
 \underline{577} \\
 51 \\
 38 \\
 135 \\
 133 \\
 \underline{80} \quad 2
 \end{array}$$

173
188248 442
Mumbo
Pork
73

$$\begin{array}{r}
 3/13678/583 \quad 112 \\
 \underline{3578} \quad 893
 \end{array}$$

$$\begin{array}{r}
 2 \\
 49 \quad 9/513/5 \\
 49 \quad \underline{488}
 \end{array}$$

$$\begin{array}{r}
 7/6251/893 \\
 \underline{567} \\
 63 \\
 21
 \end{array}$$

$$\begin{array}{r}
 8/513/113 \\
 \underline{37}
 \end{array}$$

$$\begin{array}{r}
 3/853/289 \\
 \underline{677} \\
 22 \\
 23
 \end{array}$$

5/572
693

7.000

15.12



184191

11th 27 1843 TAS

11th 27 1843 TAS



asked why can't deposit first then sending with the lens from other plate. Ask Seely, abt. Anti Compensator, also drawings -

Try handling of 300 plates lenses for 6 hours in unfrosted lens - Oil Mixture, lens oil. Sulphuric acid - lens oil containing Resin - also numerous bit of thinness & also glycerine, also Pacific, Coal tar, polystyrene residue, Rigole. Temperature also varies according.

Send to Holzer for 1000 splints to prepare them.

Ask Glauco of 300 plates to find them on 30 days if correction cannot be made. Have them on the microscope design, also lensing. Try to find parts on supply (but not for the oil).

Try hard to find lenses in oil. Try to find lenses in oil. Try to find lenses in oil.

description of 2mm immersion in Oil 2mm with hot hand rather shavings oxidize -

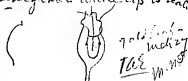


Thermometer for Central Station



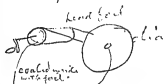
Microscope for Glauco

Boil water in Meter bottle or rather
put Zinc plate in tube with Sol Zinc
boil & seal by fusion -
unsightly but white stuff
inside of tube where tip is sealed



Tellurium bottle - for meter
turn like Hydrogen pressure
paleish new plate clamps
less carrying -

one carbon within the other in glass
2nd carbon to be heated by 2nd y -
& use as a plate to work relay



use hydrochloric acid see of gut
down - try pad metal carbon
of hydrochloric acid surface

Richard make Faraday cage
ampers continue rotation for
water

March 27 1883
J.R.

Try with shellac, cup ammonium paper, paste
hard carbonaceous enclosed within things.
to stick fibers together & then embeddings in
cloud polyethylene tubes to see if viable

write up plan to cut same fiber
with paper on each side to
prevent twisting -

Try some dilute Hydrofluoric
on unsaturated carbon.

get some small polyethylene fibers
embeddings in lime. 2 in
sat. ZnCl_2 solution.

make peroxide lead
4 parts Crystallized acetic
acid
3 parts Carb Soda
pass chlorine

200
 12
 400
 200
 2400
 30
 72000
 14000
 14000
 72000
 864000

262

$$\begin{array}{r}
 200. \\
 \underline{7} \\
 1400. \\
 \underline{30} \\
 42,000 \\
 \underline{116} \\
 252000 \\
 \underline{42000} \\
 672000
 \end{array}
 \begin{array}{l}
 \text{|||||} \\
 170
 \end{array}$$

42,000

$$\begin{array}{r}
 35 \\
 \underline{5} \\
 175 \\
 \underline{7} \\
 1225
 \end{array}
 \begin{array}{r}
 380. \\
 1200 \\
 \underline{30} \\
 3600
 \end{array}$$

$$\begin{array}{r}
 160 \\
 \underline{5} \\
 80
 \end{array}
 \begin{array}{r}
 400
 \end{array}$$

$$\begin{array}{r} 75 \\ 20 \\ \hline 1500 \end{array}$$

$$\begin{array}{r} 6 \overline{) 350} \\ 50 \end{array}$$

Foundry 200
 Asst. 7500
 Diagram 3000
 Engr. 1875
 Pipe 350
 Pump 275
~~2 Bldg~~ 80
 Etc & plant 100
 Eng. plant 250
 Misc 300

3

$$\begin{array}{r} 7930. \\ 600 \\ \hline 7 \text{ } 8.5-30 \end{array}$$

$$\begin{array}{r}
 240 \\
 168 \overline{) 30} \\
 \underline{504} \\
 250
 \end{array}
 \quad
 \begin{array}{r}
 60 \\
 24 \overline{) 30} \\
 \underline{350} \\
 7200
 \end{array}$$

90. Egr.
 230 Coal
 120. Lamp
 6. oil

$$\begin{array}{r}
 350 \\
 7 \overline{) 2450} \\
 \underline{2450} \\
 0
 \end{array}$$

446. 600 / 73500 (120)

$$\begin{array}{r}
 73500 \\
 600 \overline{) 13500} \\
 \underline{12000} \\
 1500
 \end{array}$$

2.16.

$$\begin{array}{r} 48 \\ 12 \\ \hline 36 \\ 18 \\ \hline 216 \end{array}$$

$$\begin{array}{r} 27 \\ 10 \\ \hline 270 \end{array}$$

Argentina

Belgrano

Buenos Aires 2 qm. Co

Brazil.

Bahia

Uruguay

Ceará

Montevideo

Maranhão

Olinda

Perná

Pernambuco

Porto Alegre

Rio

Rio Grande do Sul

São Paulo

Paraguay

Asunción

Panama

Panama

Equador

Guayaquil

Callao

Lima

Mexico City Vera Cruz

West Indies

Antigua

Bahamas

Cardenas

Cienfuegos

Guantanamo

Guantanamo

Havana

Kingston

Matanzas

Puerto

Rico

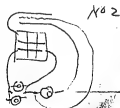
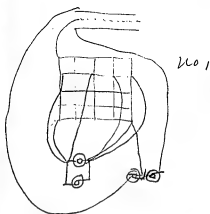
Santiago de Cuba

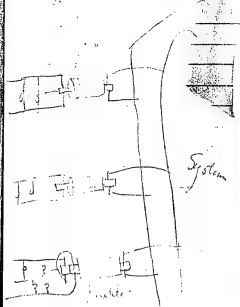
St John

St Thomas

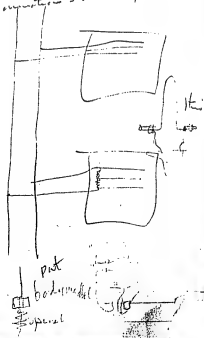
Trinidad

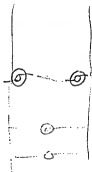
Villa Clara





tell Krugi patent flex expansion
connection is similar spiral -



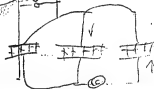
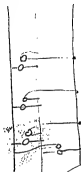


dim. 21. f

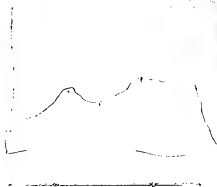
oo

oo

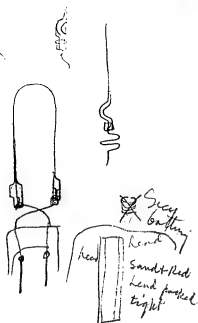
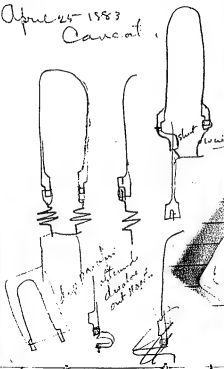
oo



Metrol Bank	1871	1871
Roy Can "	105 -	2
Blunt Tel Co.	101	93
Blunt Tel Co.	200	133
Don Tel Co	110	87
Richelieu Man Co	230	61
New City of Ind Co -	205 -	148



April 25-1983
Cancun



~~Screw~~
battering

head
Sand + Red
head pushed
tight

also silica fin
of red head
held in water pressure

Gay Lind -
W. R. Vanderbilt.
W. H. Vanderbilt,
Cornelius Vanderbilt.

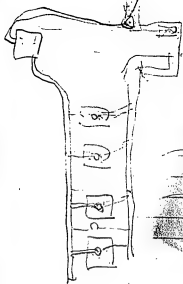
$$\begin{array}{r} 1800 \\ 1200 \\ 1800 \\ 1550 \\ \hline 5350 \end{array}$$

$$\begin{array}{r} 10 \quad 26 \quad 50 \\ \hline 13.00 \end{array}$$



Notes: None. The above is a rough sketch of the hull of a ship.



[illegible]

Pocket Notebook, PN-82-09-04

This pocket notebook dates from September 1882. All of the entries are by Edison. Included are drawings of cut-offs and electrical governors for the steam engines at the Pearl Street central station; drawings of armature windings and connections; and notes about lamps, including filament and vacuum experiments. There are also miscellaneous notes by Edison to himself relating to the electric light; miscellaneous calculations; and a note to Miller F. Moore about an isolated plant at Jas. Alkman and Company. The pages are unnumbered. Approximately 50 pages have been used. Several pages have been torn out of the book.

60 Lights. -

2 -

$$\begin{array}{r}
 14 \\
 25 \\
 \hline
 70 \\
 280 \\
 \hline
 350 \\
 3500 \\
 \hline
 600 \overline{) 705000} \\
 \underline{60000} \\
 105000 \\
 \underline{105000} \\
 0
 \end{array}$$

$$\begin{array}{r}
 5.25 \\
 60 \overline{) 105000} \\
 \underline{175} \\
 175
 \end{array}$$

$$\begin{array}{r}
 14 \\
 300 \\
 \hline
 4200
 \end{array}$$

oil

2000

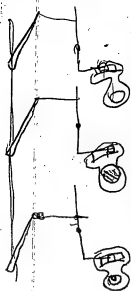
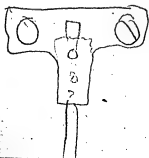
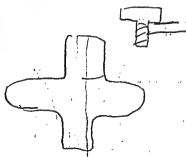
200

5
3000.
35-
16
210.
210.
\$ 210 power
175- Lamp
10 oil
200 dependent
4 Brakes

\$ 591

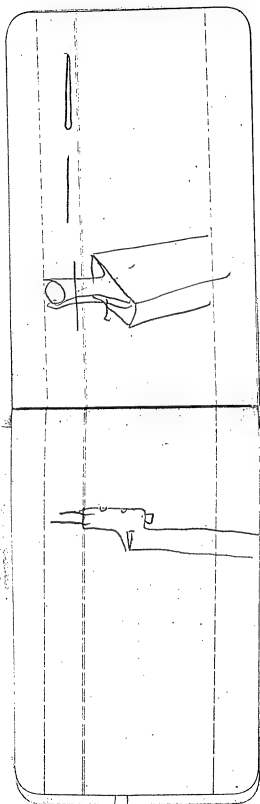
5200 51416 60x3

10-10-78-11

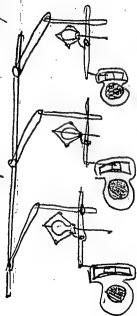


Connecting Cut off of bell
Engine together at station

Aug 1882



Sept 8 1882



forming or connecting all the
governments together

Moors.

Please send man

to Gas Aikman & Co

Newark to estimate

Cost wiring & putting

60 Light machine in

I told him that

would cost 2000.

he furnishes power -

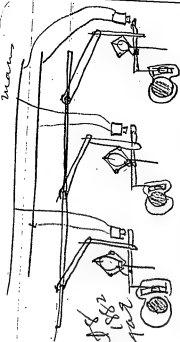
They want Electric

Soldering irons, Insull

Wires - Edison



man



Sept 1882

Electrically Connecting
900m of all-2nd

Lamp factory

Heat 1st then dry then heat

Get ground off -

P to Hg -

N to Hg -

Turn Lamps Edgewood -

fix row so all same polarity

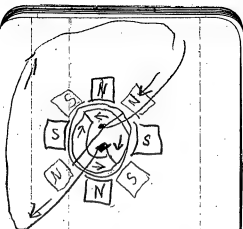
$$\begin{array}{r} 4426 \\ 33 \overline{) 30982} \\ \underline{30982} \\ 0 \end{array}$$

$$\begin{array}{r} 61 \\ 61 \\ \hline 61 \end{array}$$

$$\begin{array}{r} 366 \\ 372 \overline{) 44} \\ \underline{44} \\ 0 \end{array}$$

$$\begin{array}{r} 14884 \\ 14884 \\ \hline 16372 \\ 148 \\ \hline 157 \\ 148 \\ \hline 92 \\ 74 \\ \hline 184 \end{array} \quad \begin{array}{l} 4 \\ 4426 \end{array}$$





$$\begin{array}{r} 26.350 \\ 94 \overline{) 234} \\ \underline{180} \\ 54 \end{array}$$

$$\begin{array}{r} 1.04 \\ 116 \overline{) 104} \\ \underline{116} \\ 0 \end{array}$$

$$\begin{array}{r} 1.04 \\ 116 \overline{) 104} \\ \underline{116} \\ 0 \end{array}$$

$$\begin{array}{r} 22.1 \\ 12 \overline{) 221} \\ \underline{24} \\ 1 \end{array}$$

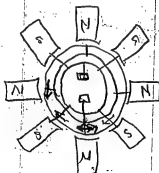
$$\begin{array}{r} 22.1 \\ 12 \overline{) 221} \\ \underline{24} \\ 1 \end{array}$$

7-

22



22

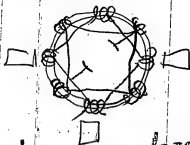


$$\begin{array}{r}
 4000 \\
 16000 \\
 \hline
 26 \\
 3 \\
 \hline
 78 \\
 350 \\
 \hline
 3900 \\
 234 \\
 \hline
 27300
 \end{array}$$

$$\begin{array}{r}
 3600 \\
 20000 \\
 18000 \\
 \hline
 20000
 \end{array}$$

$$\begin{array}{r}
 35 \\
 105 \\
 250 \\
 \hline
 5250 \\
 210 \\
 \hline
 26250
 \end{array}$$

$$\begin{array}{r}
 36 \\
 105 \\
 250 \\
 \hline
 216 \\
 27000
 \end{array}$$



$$\begin{array}{r}
 12 \overline{) 27000} \quad 2250 \\
 \underline{2400} \\
 3000 \\
 \underline{2400} \\
 6000
 \end{array}$$

$$\begin{array}{r}
 40 \\
 2 \\
 12 \overline{) 250} \quad 20 \\
 \underline{240} \\
 1000 \\
 \underline{240} \\
 3000
 \end{array}$$

$$\begin{array}{r}
 27 \overline{) 2400} \quad 88 \\
 \underline{2160} \\
 240
 \end{array}$$

$$\begin{array}{r}
 2400 \overline{) 2700} \quad 11 \\
 \underline{2400} \\
 3000
 \end{array}$$

$$\begin{array}{r}
 42 \\
 3 \\
 \hline
 126 \\
 250 \\
 \hline
 6300 \\
 2625 \\
 \hline
 12 \overline{) 315.00} \quad | 2625 \\
 \underline{24} \\
 75 \\
 \underline{72} \\
 30 \\
 \underline{24} \\
 60
 \end{array}$$

2625-ft 42 dia

$$\begin{array}{r}
 26 \\
 3 \\
 \hline
 78 \\
 250 \\
 \hline
 3900 \\
 12 \overline{) 156.00} \quad | 1
 \end{array}$$

$$\begin{array}{r}
 1400 \overline{) 2625.18} \quad 78 \\
 \underline{1400} \\
 12250 \\
 \underline{11200} \\
 10500 \\
 \underline{10500} \\
 12 \overline{) 273.00} \quad | 2275 \\
 \underline{24} \\
 34 \\
 \underline{30} \\
 40 \\
 \underline{36} \\
 40
 \end{array}$$

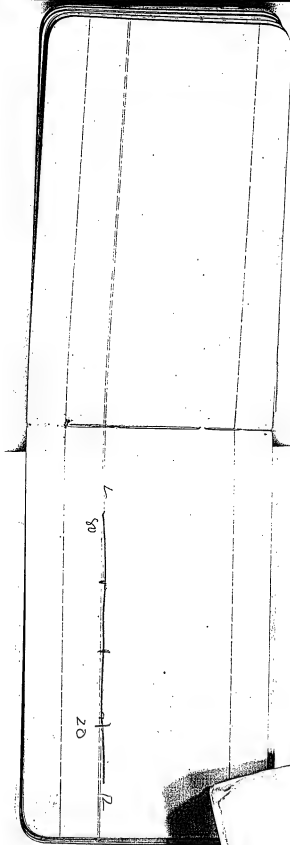
$$\begin{array}{r}
 1600 \overline{) 2625.18} \\
 \underline{1600} \\
 10250 \\
 \underline{10250} \\
 12 \overline{) 273.00} \quad | 2275 \\
 \underline{24} \\
 34 \\
 \underline{30} \\
 40 \\
 \underline{36} \\
 40
 \end{array}$$

$$\begin{array}{r}
 1200 \overline{) 2275.14} \\
 \underline{1200} \\
 10750 \\
 \underline{10800}
 \end{array}$$

Sept 4 1882.

Trying Export
Pushing lamp
Vapor through
lamp & Condenser
by freezing water
to make Vacuum
Vac not very high
but will do.

Edw



50 20 12

12.8

40

4

13.8

50

24

7.8

26

9.8

30

11.

12 feet long

26.

9-

10.8

54



N
11.11.11

$$\begin{array}{r} 12724322 \\ 117600 \\ \hline 23522 \\ 541 \\ \hline 23520 \end{array}$$

541

$$\begin{array}{r} 23522 \\ 196 \\ \hline 3920 \\ 120 \\ \hline 196 \end{array}$$

385-NP

$$\begin{array}{r} 23- \\ 22 \\ \hline 13-02 \\ 20-02 \\ \hline 13-02 \end{array}$$

250

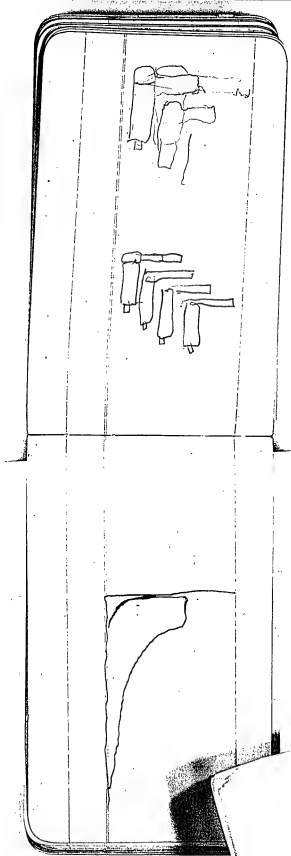
$$\begin{array}{r} 200 \\ 5-092 \\ \hline 392 \\ 1176 \\ \hline 26 \\ 192 \\ 14 \\ \hline 5-6 \\ 14 \\ \hline 14 \end{array}$$

$$\begin{array}{r}
 8 \quad 45000 \\
 \underline{1200} \quad 1200 \\
 9000000 \\
 \underline{45000} \\
 54000000
 \end{array}$$

$$\begin{array}{r}
 4500 \overline{) 54000000} \quad (12000 \\
 \underline{4500} \\
 9000 \\
 \underline{9000} \\
 0
 \end{array}$$

$$\begin{array}{r}
 16 \overline{) 2040} \quad (125 \\
 \underline{144} \\
 600 \\
 \underline{480} \\
 120
 \end{array}$$

$$\begin{array}{r}
 440 \overline{) 750} \quad (1.7 \\
 \underline{440} \\
 310
 \end{array}$$





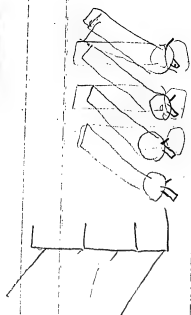
$$\begin{array}{r} 1250000 \\ 100000 \\ \hline 1950000000 \end{array}$$

$$\begin{array}{r} 100 \\ 100 \\ \hline 10000 \end{array}$$

$$\begin{array}{r} 5000 \\ 5000 \\ \hline 2500000000 \\ 1250000000 \\ \hline 2 \end{array}$$

100

64



$$\begin{array}{r} 400 \\ 120 \\ \hline 3600 \end{array}$$

$$\begin{array}{r} 300 \\ 20 \\ \hline 1800 \end{array}$$

20

$$\begin{array}{r} 400 \\ 20 \\ \hline 20 \end{array}$$

13200000
4400
30000000

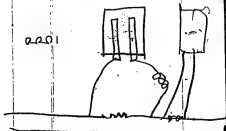
13200000
33000000
4000

4000

3000

$$\begin{array}{r}
 2498 \\
 \hline
 08 \\
 282 \\
 \hline
 31 \\
 28 \\
 \hline
 91 \\
 27
 \end{array}$$

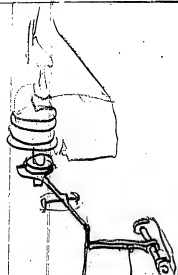
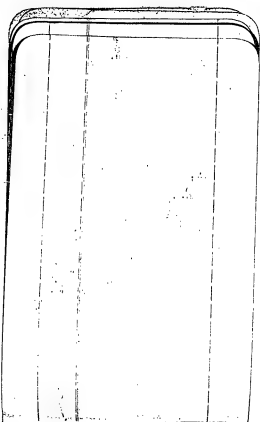
2201



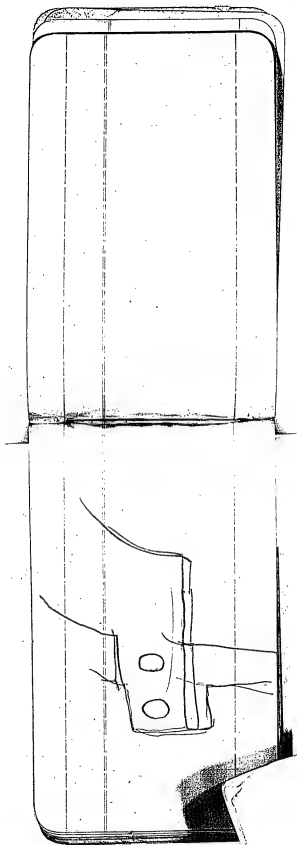
Sept 6 1887

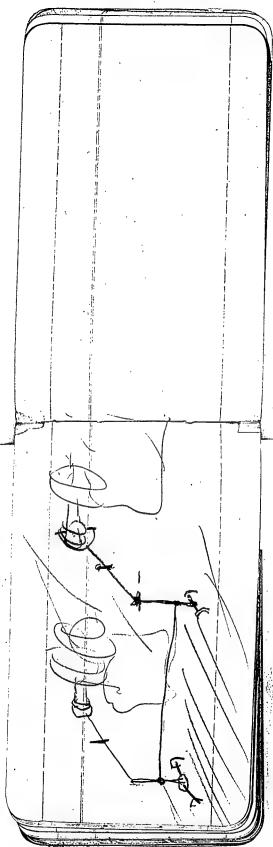
Tried experiment of
twisting together Ramie
& flax together while
passing very slowly
the flax through
Sal I then through
die also anvil +
die, who go -

also tried twisting
Several fibers Ramie
also flax through
the die that gave them
scrapping all off can
stretching + baling
gently then anvil
Coat = winding
the kind ends of any
vies good fiber



Plumbing Apr 30-6.00
Mrs. Hellmann
200 West 4th St





Pressure regulator,
ascertain what's been done
about Colombo order,
what about 500 light K.

Ask Graham if he don't
think people would buy
wall switches to turn off
whale chandeliers where handy

Check for turning off
lights at certain intervals
Sunday all night light
for mutation.

Write Moore about belting all
Eng. to one shaft & also
dynamos with clutches
Spk abt Mason C not wkg
Certain Conditions -

Write Andrews & Dean
about making 80 bar
Conits & 4 brushes,

See about Depretz =

Spk Ely about my safety
Catch turning - Good
Contact =

Goddard about chg
Also inspect status the book.

Thng for turning off Conits
Steel screw in upright on
Com -

Pay Chas Pratt Monro Bill
Very urgent



cut in 5 slots

cut notch so
pieces has
little bowing



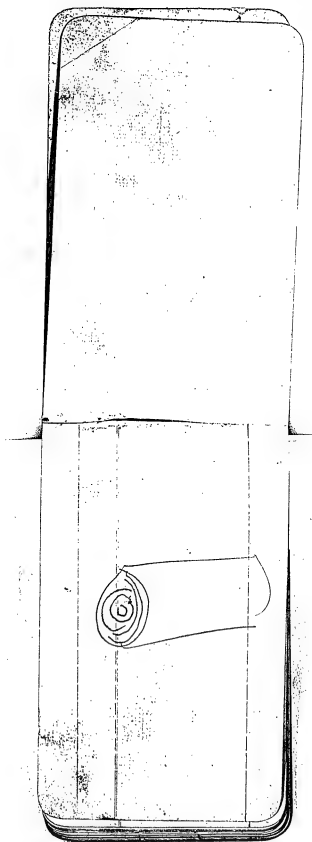
thicken board
bigger handle,

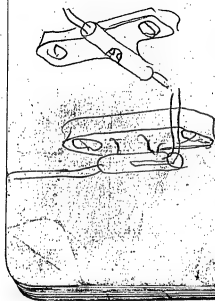
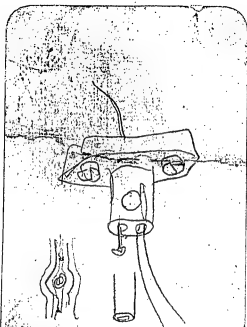
see if can
shunt bks
with heavy
split plug

DO



lock





Pocket Notebook, PN-82-00-00.1

This pocket notebook is undated but was probably used in 1882. All of the entries are by Edison and consist of notes relating to carbon buttons for telephones. The front cover is labeled "English Telephone Suit Transmitters." The pages are unnumbered. Only 10 pages have been used.

#574 Shelf 6 Box 3

No 1 has silk coated
with plumbago -
and with plumbago
between - good

No 2 Silk cut fine
Coated with & mixed
with plumbago -
better -

No 3. Silk Coated &
cut ^{very} fine mixed with
slight amount
plumbago.

Burgman says about as
loud as medium Carbon
wax pencil better than
Nos 1 & 2

NO 4 - fluf Cut very
fine coated mixed
with plumbago

same London
as NO 3 - good -

London than magnets
telephone -

Reg Inducta Coil +

3 Cells Lelanché

2 Carbon Gallies do
as well for some
reason

N^o 5 2s fine fluff
Coated mixed with
Lampblack -

N^o 6 - discs of
Silk worked
with plumbago
not very loud

over

Toniako fluf

get some raw silk
untwisted tangle
up a lot & pull it
so it will be all fluffy

then take some carbon
bullet powder & mix
thoroughly mixed
then take pair shears
& cut it up in 100 inch
lengths after cut up
pick & work all
the lamp black

it will hold & a
little more too
put in cup & press
down by a flat
disc until it is
even -

With plumbago you
can do the same
but better make thin
solution of gum
Dextrin in water
& mix plumbago to
a thin paste
& then fluff the

Soak & cook
mushy stuff as it
then pull it out
so there is no lump
& let it dry for
several hours
then twist it up
& cut in 100 of
inch lengths so it
will be a fine
fuzz - then wash
powdered plum
into it as much

so it will hold
then put in holder
& work it flat
by gently pushing
a flat piece
on it =

The silk discs
are not loud as
we didn't have

time to wake
the plumbago in
it should be waked
with a mushy
lot of plumbago
& dextrose applied
through so as to
get plumbago the
fibre - then
allowed to dry.

then rub over
another Coat
without prick
rubbing on both
sides, then dry
afterwards rub
another Coat.
the more Coats
the louder -

all these
telephones are
a little kinder
than Magnets

Pocket Notebook, PN-84-02-25

This pocket notebook covers the period February-March 1884. All of the entries are by Edison. Many of the notes and drawings relate to the carbonization of lamp filaments and the production of nitro-cellulose filaments. There is also material pertaining to multiple telegraphs, telephones, batteries, and artificial mica. The cover of the book is missing, and the pages are unnumbered. Approximately 50 pages have been used. Several pages have been torn out of the book.

"West Orange" ^P 1884
- Lat - (1884)
- Notes -

Geo S Yingling
Box 86 Jeff. Ohio

Writer relates great
want of a branding
iron that will not hurt
cattle - etc - nitrate silver

states that only very simple
brand used as better run log
if complicated brand several
cows need great pain to
annul -

Feb. 5 1904
Try gelatine mixed with
Phosphate lime, also
phosphate ammonium
& other alkaline phosphates
in different proportions
with view present melting
& swelling in Carbonyl type
also Chloride Ammonium
which will volatilize
before red, also with
Gosline rather salt
Volatile things try
Ammonium Salt in H₂O
mixed with gelatine
this ammonia going off
below red -
also try various agents
try sulphur crystals
with gelatin

Good, nothing left out before

Nothing is to know now. Both
the water & the ground I didn't
do this before hence back to back



My friend - will
have also phosphate
have also lime water
have two off Chicago -

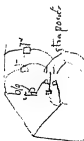
July 28 1884

John

Write Hager to
make some filament
of Brimbor with the
inter silica surface
left on

5

Oct 4/19



Send constant attention to
Keep near your bottle.
Have 5/16 in back side
cutting in release valve
Control by putting on eye
Control the battery is not
bottling.

Feb 28 1884

7/28

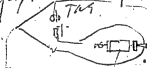
India ink. Feb 25 1884
 Seligman Cotton. Val



Galvanic unservant, &
 draw hat spin wheel.

Deposition plate Gp
 get An + An in mind
 ascertain block in at
 conductivity -

Feb 27 1884 Sextant.



Definit note. Resonance &
 telephonic
 blk dtd for nat

It strikes me after
much analysis that
the future scheme for direct
Conversion is the placing
of finely divided metal
on one plate & a per oxide
on the other by rapid
mechanical means
the placing of these plates
in vacuo & the reducing
of the perox & the oxidat
of the metal giving the
Electrolyte - afterwards
raising the lower oxide
to a per by chemical
means & the reduction
of the monoxide to metal
by gaseous reduction
with heat & lot
of working for Easy.

handling + preparation
of plates + rapid
reduction + peroxidation
so one man can handle
apparatus for a 1000
lit station,

Experiment.

press freshly prepared
peroxide lead on
roughened lead plate
with holes through it.
use heavy pressure
+ face it with hair
cloth - other plate
press gently on roughened
+ hairy plate. either
reduce by gas or char,
press gently, also by
lead plate in porous
Cup packed with lead
reduce by Zinc.

also Make finely
divided lead by
Electrolysis in Rault
Sol from another lead
plate = also by
blowing air + also
by stirring.

Also try hairy plate
with red oxide lead
in holes for reducing
the H₂,

With them both
the above materials.

Should preferably be
irreversible,
with this placing on sheet
the material to give the E
a good long & exhaustive
trial before giving it up
Ascertain the theoretical
Amount of lead to Mono
& per cent to mon in
weight perhaps once per
hour

Try all other Salts
than Sul Acid
Try the fine lead in
Mercury as amalgam
and the red Mercury on
amalgamated plate,

Try iron salts as the
cheapest,

Carbon plate &
Lead plate with
finely divided
Lead - the lead raised
to Mono afterwards
reduced by gas -
the H lost & don't get
full current but
by heat & gas agitation
prevented from ~~spoke~~
perhaps the Carbon ~~it~~
may have proximity ~~from~~
the H & air about it

Exhaustion
platinized surface
Carbon, ~~Carbon~~
perhaps red mercury
on Carbon

try common print
cloth dipped in
Solution of linseed
oil in which is mixed
iodide Cadmium crystals
fine, then dry by
Centrifugal to give
a slick surface

10 lbs. 3000 lbs.
1000x

Soak flax & manilla
in water day or so blot
& then freeze to bust it
all into filaments.

Look into Experimental
research book to see
what essential oil it
was that dissolved
paper

The compound of cellulose
 with the various salts of
 the various acids, such as
 sulphuric, nitric, phosphoric,
 hydrochloric, etc., are all
 soluble in water, and the
 solution is a good conductor
 of electricity. The compound
 of cellulose with the various
 salts of the various acids,
 such as sulphuric, nitric,
 phosphoric, hydrochloric, etc.,
 are all soluble in water, and
 the solution is a good conductor
 of electricity. The compound
 of cellulose with the various
 salts of the various acids,
 such as sulphuric, nitric,
 phosphoric, hydrochloric, etc.,
 are all soluble in water, and
 the solution is a good conductor
 of electricity.

See if Silk can be dissolved
 and it will combine with
 glue, rubber, resin etc,
 Mich, 20 1884
 Try dry salts of Cupric
 Ammonium & Cellulose
 with heat to dissolve
 for substituted for
 Celluloid

Mich, 20 1884
 See if there is not
 a Valuable Compound
 of Calcium Magnesium
 etc whereby a deposit
 of Oxide can be put
 on filament by
 Electrical Induction

See if Pumice stone rubbed on
filament will make smoother
surface on filament.

Mix With the fine size or stuff
to polish with 50 or more percent
of Magnesia oxide which is not
fused. Or by Carbon, grinding the
latter up fine with the size -
apply as in french polish -

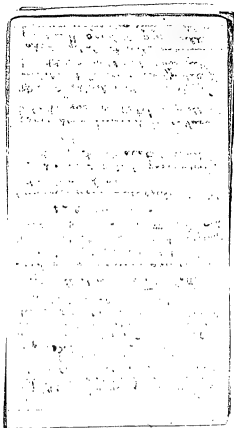
See if Bladder intestine etc horn
Can be tanned or affected by
Tannic acid -

Ascertains by experiment everything
that will precipitate glue
from its water solution.

also if glue is soluble in
any other liquid than water.

As Tragacanth is a Compound
of lime see if more lime cannot
be mixed with it -

Try the Cellulose experiment with
Conc. Solutions of all kinds
of Compounds of various kinds.



also put Nitrate Potash in it ^{very}
stir rapidly & then put Sulphur

~~Put~~ Rub glass with it & expose
to fumes of Nitric Acid rub ag.
+ so on acc if cant get layer

Make mixture of Rubber with
various things such as linseed,
also rubber with Resins to get a
flexible sheet also Celluloid,

See Coles about furnishing
Archie Stabs to try Experiment
with,

Study up running Capers
ons to rough matter,

French Polish film to with
various things to get shining
surface of Carbon

Which is Dammar
= Coarsest paper be made of
it by cutting in exceedingly
narrow strips, then felting.

Try experiment of using Linseed oil mixed
with finely divided (shavings) of plumbago
between Carbon plates separating the liquid
so as not to allow actual contact &
Keep adding plumbago as long as it
comes down in reaction. Another
way is perhaps better is to use finely
divided metal as an acid will
take that out of the Linseed oil -

Try the effect on Linseed & Cotton
acid oil of Various oxidizing
agents with & without heat,
this Nitrate Potash Hot Sulphuric
acid - peroxide of Potash
Vanadate Ammonia,

Chromic acid - peroxide of manganic
other than lead,

Fluoride of Potash, pass chlorine
gas through it with acetate lead in
Linseed -

Boil some Linseed in a Vacuum
tube to expel the Volatile Constituents,

Mix Linseed oil with Every Kind
of Solvent to see if Some Volatile
Constituents will not come out
also acetate it with Various
powders to see if the pores will
not take up the Volatile Constituents

preferable way would
be to bleach Ependem
of the wheat or
grain

Utilization of Bran combined
with Cementing Material
+ Hydraulic pressure to make
Base Material for all uses,

Act on bran with SO_2 - $ClZn$
+ also HFP - also other
Conc liquids, find its
Solvent, also analysis to
see if Ependem is abnormally
Constituted,

Mix with thin glue water then
put in Centrifugal + throw
most of it off then press +
dry - Try Rubber also
bragacanth also, Resins.

Gathering Butler,
Little Falls Man

Artificial Tortoise,

Utilization of Bran
as base material.

Cheap $\frac{1}{2}$ c lb. -

Grind the oxide lime or
Magnesia with the gelatin,
in paint mill for filaments,

Making Sheets bone by
Rubbing layers gelatin
then flow Richmond K
~~the~~ stain 2 times -
Sun it & dry then over it
again gelatin & so on -

Mix glue + Microcellulose together
also glue + Cellulose dissolved
in Cupric Ammonium.

See if there arent substitution
Compounds of Cellulose that
is soluble in 100 Galtz
Solutions.

Way Duplex,

Gold Superintending Mac
by Copper chloride process.

Mix glue + organic Carbon
Compounds larger proportion
of later Carbons -

Filed: 1884 Feb 11 - 1884 (A)
Pat. 1884 Feb 11 - 1884 (A)
Pat. 1884 Feb 11 - 1884 (A)

~~Stop~~
Stevens
Nenck Wis -

Change Color brand to
pure white for grinding
into flour -

1/2 cent allowable.

in addition to 1/2 ct
there would be 2c profit.

Bran worth 1/2 cent per pound
grain goes into bran, but
can be separated.

get large round
potatoes slice them
thin dry under gentle
pressure to make Carbons
from -

Also Turnips, pumpkin
squash, Egg plant, (try
Epidermis of Egg plant)
apple, Turnip, Beet,

Carbons - Calloderm films
in Lumber -

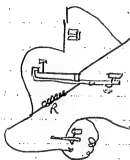
mix Shells or Linc
with Sol of Callodion
also other things filmings
of Carbons &

Licorice seems to Carbonyl
with and any swelling
large amount goes
off - might be used
as binder or mixed
with other things, rolled
into sheets to cut
filaments from



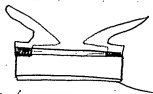
May 21 1964
paint filament with
Camel hair brush
with acetate of May
also June, May
1st - then get Vac
& gently bring up
then 6k Vac & paint
again etc several
times - then get large
phenomenon

See if a agate or
other stone grinding
Mill can be obtained
perhaps a Boqueron
port grinding Mill
will do to grind the
Oxides with the Carbide
Compounds -
E



Artificial Mica

Ground Supply plug material
 Nays to take of much paper than
 oil then lay it - etc



Oct 21 1884



insulating ring
on chalk
dia over it
thousand of fine
flat, too even
resting on chalk

dia air tight,

The H_2O rushing up & down
pores produce Vac &
work Dia, E

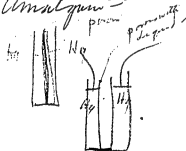
March 21 / 884
Forced Carbon
batteries -

Use hot conc sol of
Caustic Potash to
absorb the CO monoxide
to formic acid -
finely divide the
C in porous Cup -
+ use some other
liquid outside
Keep temp high

Bran has a Silica
Surface - Hot soda
Take it off - then
by soaking + boiling
bleach - possible
by displacement Can
wash - try electrolysis
for bleaching but
rollers -

Float dissolved in
in Nitric acid
Mixed + unmixe
with Sulphuric strong
to keep it concentrated

Secondary battery
with Mercury Electrode
+ such solution as
to make a Hydrogen
Amalgam -



Hope this will do the
biz. Mch 21/84

Conc sol CHP
Magnesia rather
with glue
Carboys -

Melt glue or gelatine
~~mix~~ mixed with the
oxide Magnesia or
Compound thereof in
the smallest quantity
of water possible &
force this out into
sheets through a
die, blow or attenuate.
Cooling to set it
quick when it comes
out.

by this means a minimum
quantity Water can
be used -

By dissolving glue in
Damp phosphoric
anhydride,

Just there a Succinate
of Lime or Magnesia,

Tartrate Magnesia
will perhaps
Carbonate of Magnesia
with little glue

I wonder if starch
is ground so as to
break all the starch
granules if it is
mostened & dried
in sheets if it will
work -

Try this grinding
with glue -

perhaps Gutta
Serena mixed with
lime Magnesia etc
works -

Try Gum Zanzibar
& Magnesia melted
in linseed oil &
made in sheets a la French
palese

Wonder if iodide
of nitrogen precip
mixed with glue,
wouldn't carbonyl -

Try asphalt + Magnesia
also compounds of
Lime + Magnesia soluble
in menstrum ~~in~~ in
which asphalt is
soluble in -

also Tragacanth as
a base

Try Vanadium as an
oxidizer for grease
oil & tallow oil.

Iodide of the high
Melting Oxide might
be used in place of
Chlorides as the
iodide is cheap
much easier,

Use Cerium & the
rarer oxides in the
Experiment, also
phosphate other
than lime,

perhaps in the silk
experiment an elastic
precipitate from
something might be
formed on a platinum
point immersed in
the liquid & wound
up on a platinum
cylinder within the
liquid.

Can a bladder be
tanned, if so it
would work owing
to oxygenation.

Make a 100,
Sticks $\frac{1}{2}$ dia
of charcoal at
Lamp factory
have them lums
from white wood
rather woods for
Experiment in direct
Conversion -
Make them 8
inches long -

Manganate Soda
for taking Carett
fair reviews -

Mix bran with
glue having minimum
water make into
sheets,

Mix Sulphur with
glue bath as flows
+ in compounds
from also with
other bases think
in Carbon the S
will combine with
the H & thus not
attack the Carbon

Mix with Collodion
an animal matter
like glue which
will reduce the
O of the Nitro Cellulose
in Carboxylation.

don't think glue is
valuable. but some
Carboxylable Material
may be think dimer
oil is & that could
reduce --

Boil glue in
Sulphuric acid
see if it don't harden
it by taking H₂O
away

Cant something be
put in Colloidal
that will be decomposed
by light such as the
non solutions hence
after sheet is made
exposed to light
decomps the Nitro-C
to plain Cellulose

Mix coal tar also
Chances al also crude
Petroleum with dithings
& abs. etc lead in
Crucible with Coors +
5 in. diameter globe agt
problem in i.e. over

perhaps may have
to mix a flux with
it such as Salt
Borax etc -

Mix. magnesia oxide. - also Carb. with
fine telephone lamp black and gelatine as much
as it will stand of the magnesia - also try Tar
Magnesia & lamp black - also try Lime,
Oxide of Aluminum & other oxides.

Mix. gelatine or rather glue with water & the
oxide also with chlorides of the impurities.

Try Tongue and the oxide, the idea being
to use as much of the oxide as is possible with
the carbonizable organic material.

If it is possible mix tar with the oxide only.

I have a theory that the oxide will not be reduced
and that the organic material will be carbonized
as a side work the oxide staying there because when
carbonizing commences $\frac{1}{2}$ or more will be white
oxide hence the carbon will not turn as long
and the globe will be no blacker besides I don't
know of high resistance carbon.

also try boiled linseed oil & the oxide rolled out
thin in sheets - a la putty.

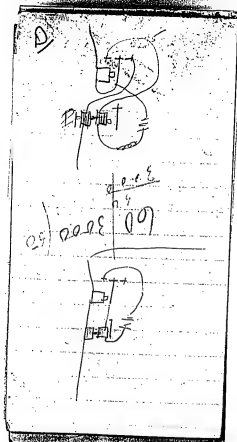
Sheet gelatine treated with
Bichromate of Potassium
Magnesium aluminum

$$\frac{1}{10} \text{ H. } \frac{1}{1600}$$

16. 34.60 21.7
3 2.0
2.0

75-2 2.0

75 -	1800	
Pump	150	
Eng	1400	
for 1/2 in	250	
Belt	30	
Belt, 1/2 in	180	
Dynamometer	3000	
Selling 1/2 in	300	
greatest	75	
1/2 in work	450	360
Piping	300	3450
1/2 in top	50	150



1220.
42
25
50
100
150
20
375
450

50
3

110.
20
10
50
30

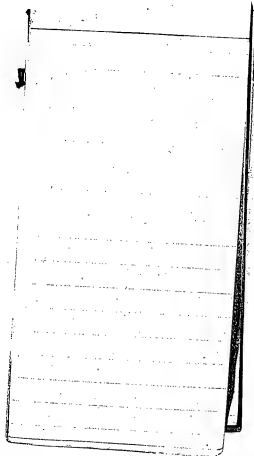
96	Fare
36	- Pullman
16	Eating
246	Magnolia
4	Fare Mag
4	Augustine
6	Palatka
67	Palatka Hat
67	Saufer
10 ⁵⁰	Tamper
13	Shells
16	Waiter
16	Young boat
20	Coming boat
20	grove
40	Maine
20	

20	Baths
8	fixing
<hr/>	
688	

7

688
600
40
<hr/>
1328

1500
1328
<hr/>
172
12
<hr/>
160
25
<hr/>
135



400 pells.

25 sqr inch 3 inches apart
 3 ohm $\frac{1}{4}$ inch apart. ~~25~~ ohm
 hence 4 sqr feet. 2304 sqr inch
 $\frac{1}{400}$ of ohm.

48
 48
 384
 192
 2304

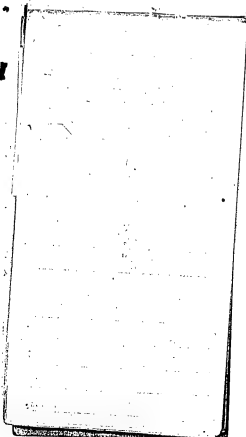
20 — 100
 80 — 200
 320 — 300
 1280 — 400
 5120 — 500

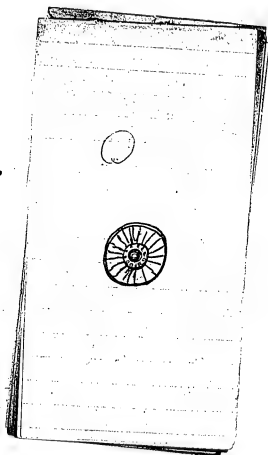
92 25 1
 46 01250 2
 006 4
 03 8

25 | 2304 92
 225
 54
 50

25
 1 ohm welded
 100
 $\frac{1}{400}$ ohm

100 hp current with 20
 tons require 81. tons
 to double the deposit.





Pocket Notebook, PN-86-03-04

This notebook covers the periods March and October 1886. Most of the entries are by Edison. Included are notes and drawings relating to the phonoplex, a hearing aid, lamp filaments, and kerosene lamps. There are also notes by Edison to his patent attorney, Richard N. Dyer, regarding an interference with Frank Sprague. In addition, there are entries in Mina Edison's hand pertaining to household accounts and suppliers. The front cover is stamped "Address." The book is unpaginated, and it has been used in both directions. Approximately 60 pages have been used. Numerous pages have been torn out of the book.

1994

[illegible]
$$\begin{array}{r} 223 \overline{) 265.000} \quad \text{Lay} \\ \underline{221.45} \\ 34500 \end{array}$$

OK Larry

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

March 2 1886
 Pass strong currents through
 solutions & then test with their
 proper reagents, also elctro
 in field of powerful magnet
 see what change if any



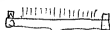
Phosphor X lifts weight
 nearly up & neg throws it
 open abt when whole
 power of weight makes
 down some

Deaf March 4 1888



Ide

Vacuum - also. an - Hydrog.
CO₂ under varying pressure
also. Ether -



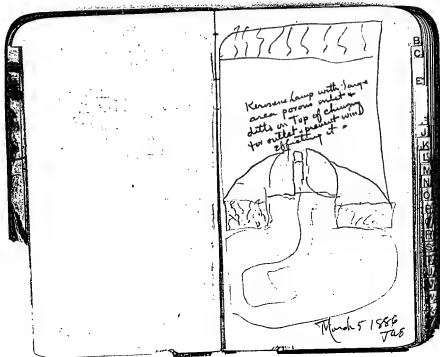
Bristles etc
prevent
rebouncing
sound wave
felted -
valves,

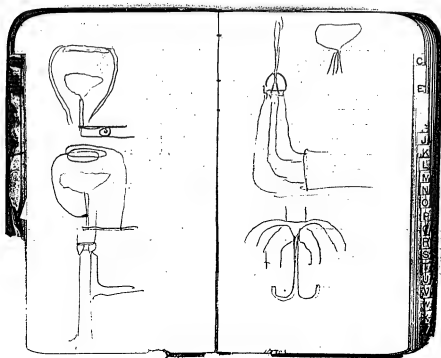
good

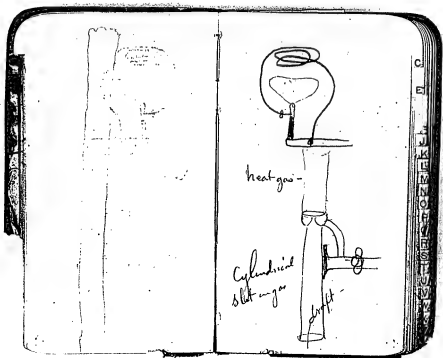
To dissolve out the resin
of Bamboos etc. use
boiling linseed oil
(12) hot & 24 hours. This
is Panam resin process
nothing else will do it - E

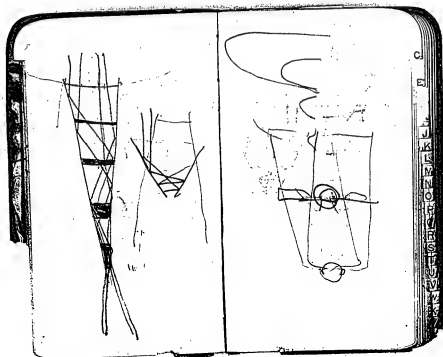


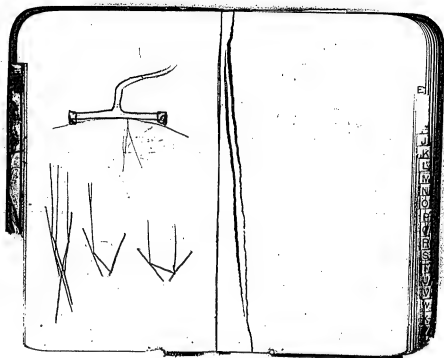
Try Microphone
again -

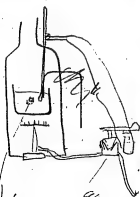




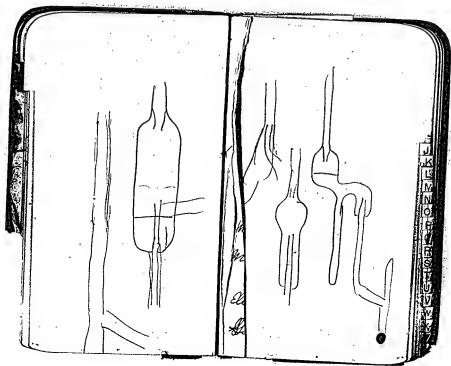


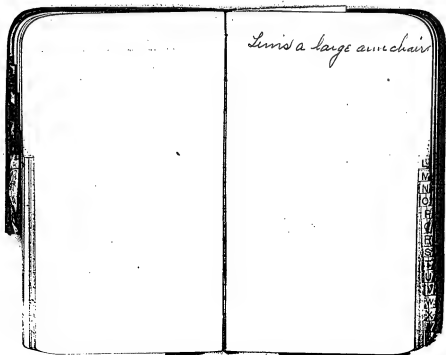






Hydro - gas register
Continuous heat source
temperature





Ac. Thomas \$150.

Mine 60.

Thomas, R. & S. 10. to C. C.
for four persons.

\$150.

90

20

100

5

\$371

Thomas \$150.

Mine 60.

" " \$26.

" " \$10.

" " \$10.

" " \$10.

Spoke Housings - 1
Munition - 1
Suit - consists of

1. Dress. Cap.
2. White muslin shirt
3. " " " " " "
4. " " " " " "
5. Kelly Band
6. " " " " " "
7. White Muslin shirt.

Shoes

1. 2 Pair of shoes

2. 4 " " " "

3. 2 " " " "

4. 2 " " " "

5. 2 " " " "

6. 2 " " " "

7. 2 doz soft Handkerchiefs

8. 2 doz soft Handkerchiefs

9. 2 doz soft Handkerchiefs

10. 2 doz soft Handkerchiefs

11. 2 doz soft Handkerchiefs

12. 2 doz soft Handkerchiefs

13. 2 doz soft Handkerchiefs

14. 2 doz soft Handkerchiefs

15. 2 doz soft Handkerchiefs

16. 2 doz soft Handkerchiefs

17. 2 doz soft Handkerchiefs

18. 2 doz soft Handkerchiefs

19. 2 doz soft Handkerchiefs

20. 2 doz soft Handkerchiefs

21. 2 doz soft Handkerchiefs

22. 2 doz soft Handkerchiefs

23. 2 doz soft Handkerchiefs

24. 2 doz soft Handkerchiefs

25. 2 doz soft Handkerchiefs

26. 2 doz soft Handkerchiefs

27. 2 doz soft Handkerchiefs

28. 2 doz soft Handkerchiefs

29. 2 doz soft Handkerchiefs

30. 2 doz soft Handkerchiefs

31. 2 doz soft Handkerchiefs

32. 2 doz soft Handkerchiefs

33. 2 doz soft Handkerchiefs

34. 2 doz soft Handkerchiefs

35. 2 doz soft Handkerchiefs

36. 2 doz soft Handkerchiefs

37. 2 doz soft Handkerchiefs

38. 2 doz soft Handkerchiefs

39. 2 doz soft Handkerchiefs

40. 2 doz soft Handkerchiefs

Branches count.

Bathing Tent -

Coadlin -

Shoulder Blanket - 3 or 4

Ad. Gray. Bed. Poof -

Blankets - 4

Shelter 2 doz pairs

Comforters 2

Pillow slips 2 doz pairs

Under coverings - 1

Rubber bed sheet - 2

" " " " - 2

Baby films

Hensses aprons - 1/2 doz

" " " " - 2

" " " " - 4 aprons

" " " " - 1 cap

" " " " - 4 aprons

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

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" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

" " " " - 1 cap

Tool rack -
Scissors -

Pottier & Stymer

Arnold's

Wachs

Sticks

Dr. Chodbourne 21

West 28th St -

Amels

Colman's -

Baby B. { Brush & Comb
Powder & R. Box
Sponges
Swabs
White silk
Scissors
Pens common

Bachman
Tool Rack
Scissors

William P. Stymer

Pattin & Stymer Mfg. Co.
489 Fifth Ave.
New York -

Mrs. E. P. Brush

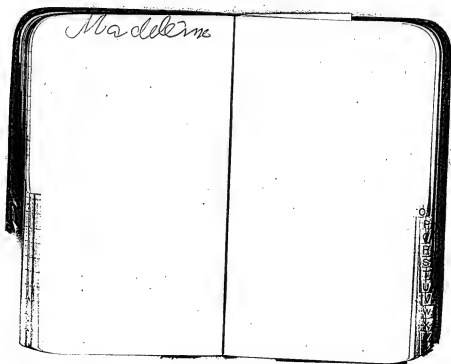
39 W. 42nd St
New York

Miss Richmond

139 W. 46th St
New York City

Domino & Co. 23-5
Mrs. Richmond
St. Louis
H. and H. chiefs
H. and H. chiefs
Rough
Baby dresses
V. & H. on
grass goods
H. and H. chiefs
Lia

Charlie Bunch -
195 Broadway -



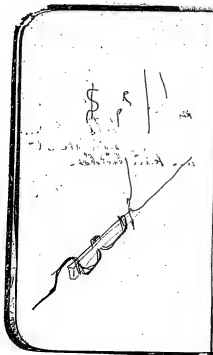
#519
Shelf 6
Box 3

211
41
31
6
68
82
61

17
68
6

LS1
78
43
68

Tell Thompson
that his friend E. L.
Allen is sold
his grove & all property
for 5500 Cash
return to Indiana
Monday —
W.



with the new clamp goldblatt
is making use of platinum foil
around carbon & shove into a
springy socket of platinum

cut some apple wood into
Doby word and fibres or

Oct 3, 1886



slamp out in die plat wire
then in another die make it
square then



fibro

get some electrotype plates
put some film on to it
also put some in bottom cup
put film in & then with plunger
push it hard then add more
plenty of rubber film pass

Oct 3 1886

420 on -

Make Mould of Distin +
plumbago plus - See if
long I got that is for four
plumbago a very clean
mould - Distin Mould
through die after it has
been soaked in following
Sugar Caramel Recipe
Starch Caramel
Linned Mould
Gunarabec Rouse.
dry the fibre then with
hot die also through
hot oil to soften brush
material draw down
very hard dry & clean
try all the fibres this
day - Also gumbo

Oct 3 1946

Carboys frozen
filament angle of
No also angle 45

Soak No 20 carboys
fully & resorb &
reat-bouye.

Wrote our name in Fla
sending sample to day
r-said 168 roots also
2 whole banana stalks
green -

Get some whole locoweed
to acquire spores
grows with bilumina
want see if it changes
also dry lumps -
My Copala

Oct 3 1986^A

pass current through a
reg carbon in air under microscope
at hull red + notice oxidation

put bamboo in small bulb with
light capillary tip get vacuum
heat it slightly then break
under sugar water + while
full seal + heat for $\frac{1}{2}$
hour as as to get
increased pressure -

put bamboo in sealed
tube with sugar + heat
to 180 to 220 for $\frac{1}{2}$
hour

Boil 12 Canbros in 1020
solution all day.

Try Manilla for wetting
use amline + sugar

Soak in hot traganx
for 1/2 day Marilla then
take out & draw it round
through split die of
Keller dry in drying
oven then cut in length
& carbonyl in antirivolt

also put bamboo in
liquid sugar in
Vac with 1 U tube
of chl Cal to
take up water
color with aniline,

Oct 4 1886

Boil ful bamboo
also carbons
in Coal lag
with Carb

also in Asphalt
mined by
Jupiter

also Carbons
High length

0.36
84.41
1697

Oxalic acid melts

212 - C

Boiling Benzene acid

225 C

Saccharose (cane sugar)

160 C melting point.

Soak Bamboo

filo in Cupric

ammonium few
min. ~~10~~

also dip + allow
sol to dry -

Carbonyl

6 pt Cotton wool be
disolved in mixture
24 pts SO_4 & 6 pts H_2O
a gelatinous precipitate
thrown down on adding
more water. This is
amyloid, same as
interfering of parchment
paper -

Treat some
bamboo fibre with
 $\text{HCl} - \text{SO}_4 -$

$\text{KO} - \text{ammonia} -$

Carbonyl -

also same but
wash by SO_4 & $\text{H}_2\text{O} -$

Have Mills Cut some
parchmentized paper
filaments reg A -
Boiled Malasses
10 hours dry +
Carbonyl -

$$\begin{array}{r}
 15 \\
 100 \\
 \hline
 1500 \\
 45000 \\
 \hline
 48000
 \end{array}$$

$$\begin{array}{r}
 300 \\
 240000 \\
 \hline
 240000
 \end{array}$$

$$\begin{array}{r}
 132000 \\
 8000 \\
 60 \\
 54 \\
 300 \\
 8 \\
 60 \\
 400 \\
 500 \\
 \hline
 209000
 \end{array}$$

also carbonate the
paper files & then
soaking & then Boil
Cantonese Malacca
also sugar -

Make a shaving
Knife

$$\begin{array}{r}
 4300 \\
 18000 \\
 9000 \\
 2500 \\
 \hline
 33500
 \end{array}$$

Mators Oct 17 1888

Have Dyer report on
points of Saring we
[unclear] also
which he has [unclear]
by other

Packing zone
in force & also
cutting in front of
Countryside, around
or near field -

use burnt lime
also only Soil Cu
for drying in pump

fusible metal

$\text{Bi}_4 \text{Cd} \text{Pb}_2$ 59.5°C

$\text{Bi}_8 \text{Cd}_2 \text{Pb}_7$

$\text{Bi}_2 \text{Pb} \text{Sn} \text{Rose}$ 93.7°C

$\text{Bi}_4 \text{Cd}_1 \text{Pb}_2 \text{Sn}_1$ 60.

Ends turned out
but round



both
Carbon
Lose.

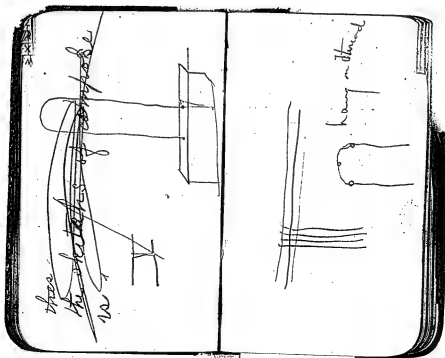


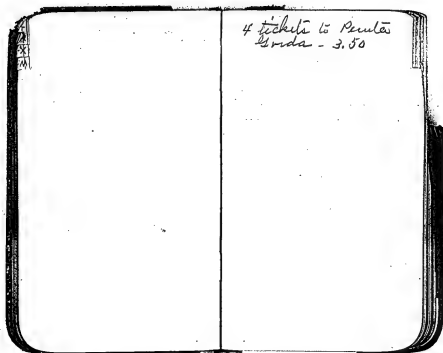
without
locking
part
at up right



high
friction

upright





4 tickets to Punta
Gorda - 3.50

4 tickets to Punta Gorda	@ 3.50	14.00
" " Jacksonville	@ 12.50	50.00
" Lower Benth to L.S. Min	@ 2.00	8.00
" Baggage Express	@ .50	7.50
" Sulphur at Punta Gorda	@ .50	2.00
" Breakfast at Bartow	@ .50	2.00
8 lbs. Strawberries	@ .20	1.60
1 doz. Oranges	@ .30	.30
4 pen 2 days Lake Min	@ 3.00	24.00
4 tickets to station	@ .25	1.00
4 times for express	@ .25	1.00
" tickets Windsor Hotel	@ .25	1.00
6 oranges @ 5 per	@ .08	.15
Porter fee		.75
1 admission for Mamma	@ 1.20	1.20
1 admission " Kate	@ 6.00	6.00
2 admission	@ .10	.50
4 shirts for Papa & Darling	@ 2.50	10.00
2 shirts		.50
1/2 doz Windsor Hotel	@ 7.50	30.00

8 Lemons	---	20	2.00
4 1/2 lbs to Cincinnati	@	33.10	2.40
2 Cichlons	" "	5.00	2.00
Washington	" "		1.92
4 Baggage train	@	20	1.00
4 Baggage train	@	25	1.00
1 Highgate	@		7.00
2 Alligator fins	@	40	76
2 Daisy Rose	@	50	1.00
Conch Top	@		0.00
29th Plumes	@	25	50
Peasants	@	25 a pk.	10
Cucumbers 3 1/2 doz @	@	70	245
Atto Rose			75
Craft Reeltons			3.00
Breakfast for 2		62 1/2	1.25
" Dinner at Atlantic		42 1/2	85
7 am		75	300
			60

Jacksonville Port		
4 tickets from Can. to Alton @	@	2.25
4 Breakfast " "	@	26.00
1 Port fee	1.08	4.35
4 Seats to Alton	@	35
Waiter	@	4.00
2 Portage fee	@	15
4 Lunch on Cars	@	50
1 trunk charge	@	2.90
		1.50

Pocket Notebook, PN-80-00-01

This undated pocket notebook contains lists of devices, ranging from chalk batteries, electric fans, and lamps to exotic items such as an "odorscope." Some of the listings are accompanied by drawings. The entries are in the hand of Charles Batchelor. They are arranged in alphabetical order, and many of them are initialed by John F. Ott. The front cover is labeled "156." The pages are unnumbered. Approximately 25 pages have been used.

Autothermo Regulator 0.12 1.25

Air engine with 1st T. spruce.

Bamboos, all shapes, also paper.

Balance, complete for magnifying.



Calomel for testing lamp

Cells must ending.

Condenser, mica.

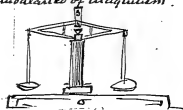
Chalk battery

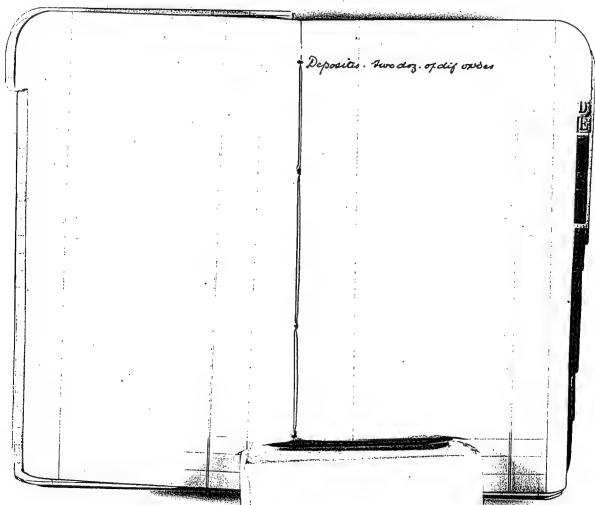
O.P. O.H.

Liquor, Cigarettes

Carbons, cases of including Graphite

Counterscales of Maquettin.





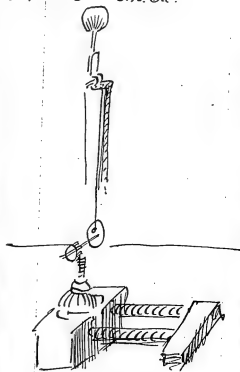
Deposits. Two doz. of dif oxides

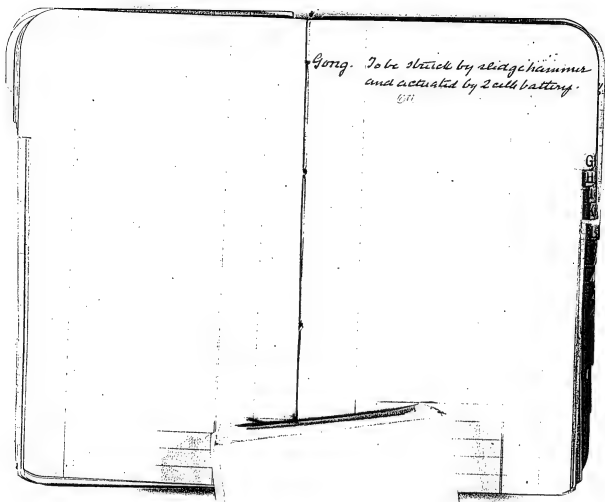
Electric pan.
Gramme Gobbin.
Reed, (2)

Engine, air with Pt. Ir. spiral casing

Electric force case

Fan, electric O.K. Oct.

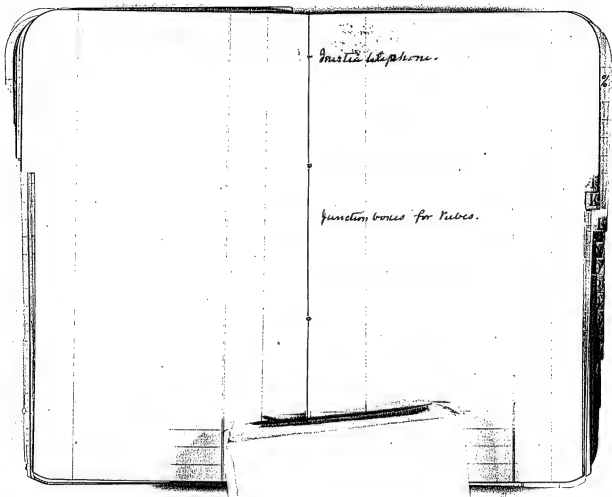




Galvanometer
Photographic or

Thermo. & ...





Initial telephone.

function boxes for tubes.

Lamps.

Platinum

12 of these about 17000 Hrs. 20%
high exhaustion. ———— OK. L.H.

Autothermo.

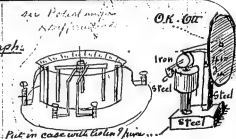
Regulator & Sa. Regulator. OK. L.H.

Wooden lamps. OK. L.H.

Resistance box of,

Leyden jars, in high vacua.

Photograph
Magna



Galvanometer

Action of motor on slip of paper.

1

Microphone, le Transmetteur. 6-15-00

RECEIVED

1
Hysteresis..

Piano. Apply arrangement to Keyboard
of any piano capable of playing
in 8 shades of tone.

Pump electric 5 horsepower.

Pen, reed electro,
Gramm lobbin.

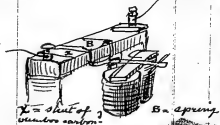
Pole changer Differential. see stereograph.
C.R. Lill

Relays

Expansion Auto press, such as was used to run the electric pen.

Repeater, telephone.

Resistance, variable. C. K. Ott.

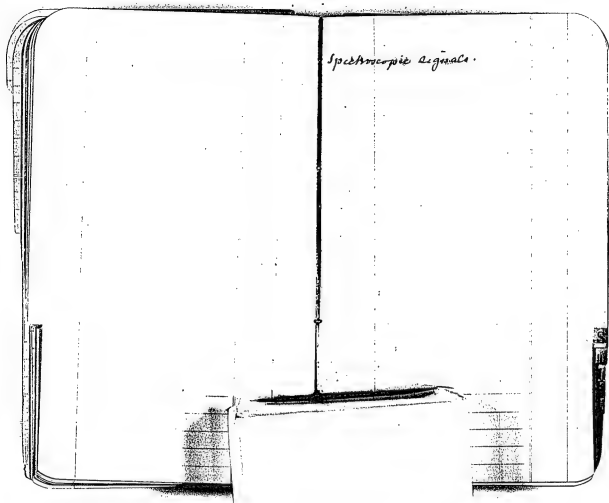


Resistor wil in vacuo. 10.

Carbon lamps.

Reed electro pan.

1



Tasimeter.

Otoscopes. Coat the expansible rod, which presses on carbon button with a substance, and shake a cloth wet with another substance in which the first is soluble, and a pressure is exerted on the button to detect odors.

All substances are transparent to radiant heat. — A plate of iron will allow it to pass in right lines. —

Experiment at Rawlins. Radiant heat finds its way across a vessel containing ice. —

Arrange a concave mirror on the end of a tuning fork and throw the beam from a source of heat on the sensitive plate

Oleophanes
merfæ.

Repeater given to OLL to make. = O.H. OLL

Tubes, strut, horns with junction box
he with corner punch box. also, 5 tubes
with fuses.

Transmitter.

microphonic all varieties



Thermogalvanometer 615.11

Vacuum Resistance coil.

Pocket Notebook, PN-86-00-00.3

This undated pocket notebook contains notes and drawings by Edison relating to lamp experiments. The pages are unnumbered. Only 7 pages have been used.

Found in 1c box
box labelled "Notes"



PN-86-00-00.3

Possibly troubles in First.

Thick dip is rendered negative by pressure marks. - Try curve on top mould showing no marks. noticed. Ed had no marks. Sheets absorb too much CO_2 , H_2O etc. notice 6nd results Charcoal. Carbons. dip sheets gasoline to displace H_2SO_4 see if gasoline offsets 17. or Kero.

Perhaps 2nd prelim too slow
17 goes off -

Try dipped 2nd than fibres
No, -

Wrap Cat around cloth not
photo side moulds -

Study their dips -

Increase heat of dips to 120° or
higher to get thicker - dry 17°
- take pressure off -

Carbonyl same in apparatus in Carbon
~~Excess~~ hot dip -

Run to 500 and hold only $\frac{1}{2}$ hour
then hot dip & run up in 1 hour
hold $\frac{1}{2}$ on 2nd =

See if Carbon \square as Ed was

Try Curves in 60x Dixons flake p690
also Electrotype =

found out how No 16 was run -

Try bunching say 200, with paper
outside and wound with linen thread
strong, and run clean to final
not taking them from preform to dip
but after Carbonyl dip and heat
to 175 then in sheets & preform
in 1 hour holding $\frac{1}{2}$ & then final
also try bunching dipped preform
200 wrapped thread see if stick

Have Bessler Duplicate 10
on the transformer =

10 Lamps Gailed anhyd SO₄ -
just dip in H₂O instant,
then when on pump
bring up through 40 Lamps.

10 Lamps with drop anhyd
SO₄ on side of bulb just
before sealing in - stop
acetylene =

Have Bessler Test drop CP
on 92 deg Lamps may be
then hold up better hence
lower life =

by SO₄ strong in Crops instead
plus anhyd - also both
together

See how much current
can be passed through
film while we make part
- Case 504 - without oxyd
this current 1 amp may
do something =

Maybe objects gets gradually
oxyd + become rough + film
cant slide -

Use micro + pick out 10
desited + 10 not desited

also ten with silver shine

also 10 by heavy weight

10 with maximum hairs

Carbon may become paper
by carbon cloth

plumbago 1/2 doz sheets
previously dipping in very
thin oilstone water &
drying moderately & before dry
marks plumbago over =
Run Curve -

Heat patches plunge into 17
subally so 17 runs up into
pith pores which are large
when looked end on then
taken out Runse trip &
put on to and for reg drip

Bend 10 Carbon van
ways Run Curve way
to 17 surface cracks
in handling.

Bend foil under Micro
see if way can be
seen

try Cotton plush Carbonized -

~~try new~~

See if Carbons stick to
shells when they are carbon
out moist.

Break off that glass
surface or moist sea of
that don't make aliffen

try new moist -

Use low amount current
up on wire through fil
to measure it -

possibly to amper make
wire away it carbon &
(new oxide) on +

Stick the pins in Cotton Ballin
Cartzd like needles in a pin
Cotton -

I suspect the slow repetition
Cooks 17 allaway -

TECHNICAL SCRAPBOOKS, 1881-1888

The technical scrapbooks are a set of seven books containing notes and drawings made by Edison between 1881 and 1888. Edison subsequently gave these materials to his attorneys and draftsmen to work into patent applications. They were eventually placed in these scrapbooks. Although the majority of items were pasted directly onto the scrapbook pages, numerous loose items were also inserted into the books. Many of the notes and drawings were witnessed by draftsmen Samuel D. Mott and Edward C. Rowland. The names of patent attorneys Zenas F. Wilber and Richard N. Dyer also occasionally appear on the documents as witnesses. Most of the notes and drawings concern electric lighting, but there are also entries relating to other topics, such as telephony, telegraphy, electric railways, and the manufacture of artificial pearls. A related scrapbook covering the period 1877-1880, can be found in Thomas A. Edison Papers Microfilm Edition, Part I, 6: 622.

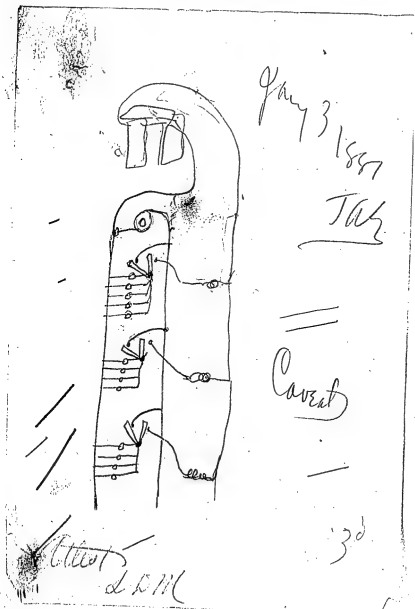
The scrapbooks were disbound prior to microfilming. They appear on the microfilm in the following order:

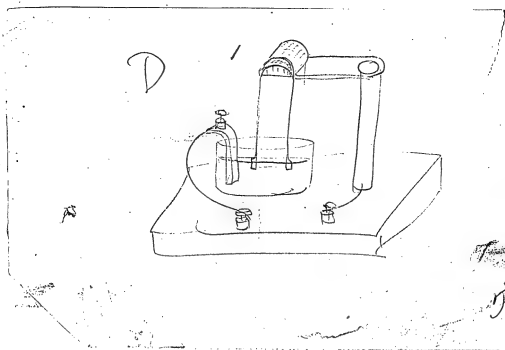
1. Cat. 1147 (1881)
2. Cat. 1148 (1882)
3. Cat. 1149 (1883)
4. Cat. 1150 (1884)
5. Cat. 1151 (1885-1886)
6. Cat. 1152 (1887)
7. Cat. 1153 (1888)

Technical Scrapbook, Cat. 1147

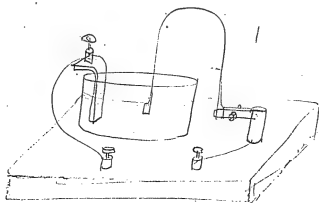
This scrapbook covers the period January-December 1881. The entries are by Edison and relate primarily to electric lighting. Included are notes and drawings concerning lamps, generators, meters, regulators, electric power distribution, and other parts of the system. There is also some material pertaining to arc lights, electric railways, and ore milling. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney, and to Samuel D. Mott, his patent draftsman. Mott's name also appears as a witness on many of the documents. The case number of Edison's patent application has been written on some of the items.

— January, 1881 —





D



B

Filed
Jan 1884

Feb'y 5- 1881
Tae



— February 1881, —

Feb 7 1881

fall



x insulation



x insulation

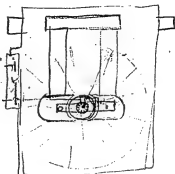
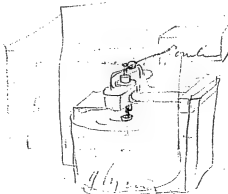
tried by wrapping

wood

July 6

108

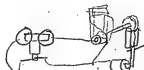
Muti



4

4

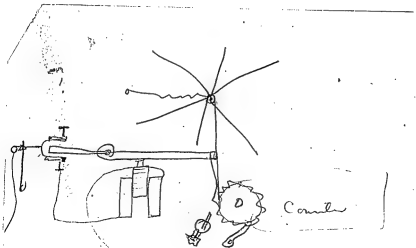
K



Feb 3 1881

THE

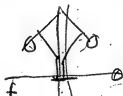




July 1 1881/85

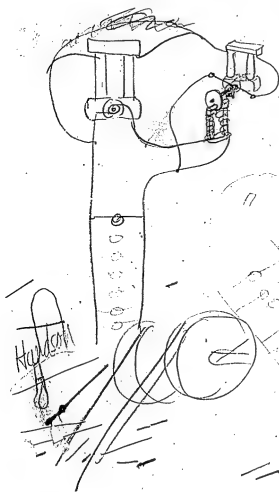
1

Feb 3 1881
Till



3
0.56

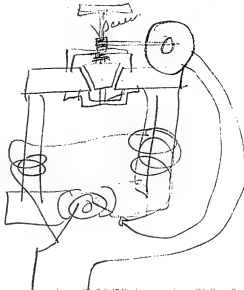
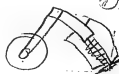
Patent



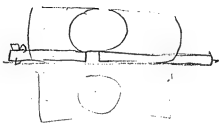
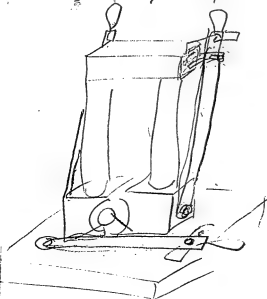
Hudson

March 9. 1881

J. S. M. H.

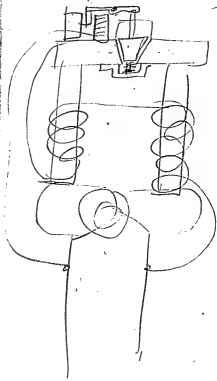


March 9 1881



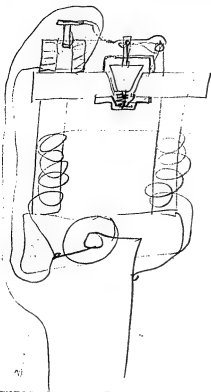
March 9. 1881

Stillwell

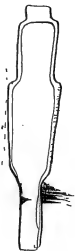


March 7, 1881

S. D. Mott



Mach 10 1884
Feb



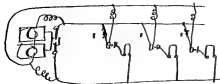
The Edison Electric Light Company,

65 Fifth Avenue,

Nevin Green, Pres.
S. B. Eaton, Vice-Pres.
E. P. Fabbi, Treas.
C. Goodard, Sec'y.

New York, 188

March 14 1881
Tar

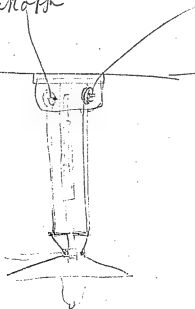


March 1881

March 28th 1881

S. D. Hoff

Notes



Case 302

Figure 1

a b c

Figure 3



Figure 4



Figure 2

a b c

Citizens

D. B. Mott

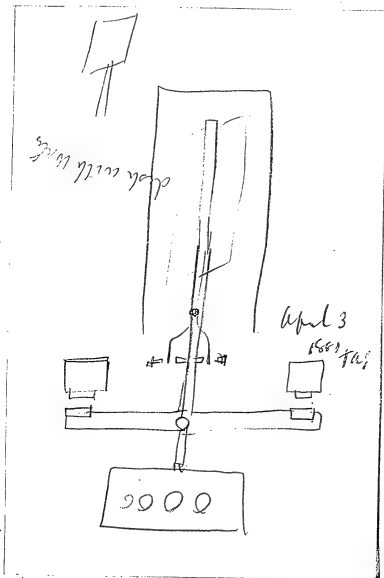
MAR 30 1981

MAR 30 1981

MAR 30 1981

MAR 30 1981

— april — 1881 —



The Edison Electric Light Company,

65 Fifth Avenue,

PAID
NOV 12 1881

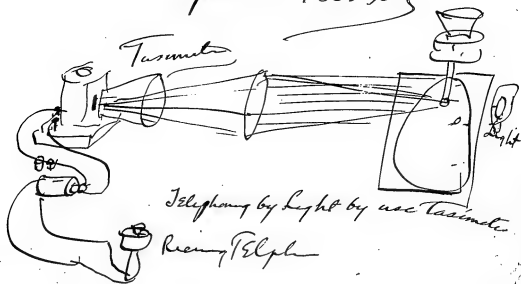
12

New York, 188



— April — 1881 —

April 5 1881 Taz



Telephoning by Light by use Tasimeter

Richard Pelph



Matt's

Have I this
either in patent
or in Cause

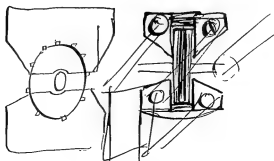
April 4th 1887

S. D. Mott

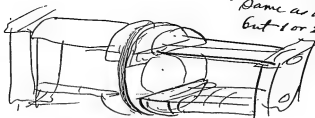
The Edison Electric Light Company,
65 Fifth Avenue,

Nathan Green, Pres.
S. B. Eaton, Vice-Pres.
E. P. Fabbri, Treas.
C. Goodhue, Sec'y.

New York, 188



*Dynamo of discs
Same as on Reg
but 1 or 2 inch bars
(in length)*



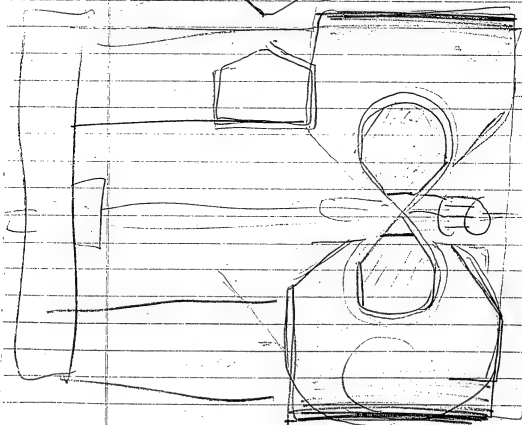
April 12 1881
J. E.

April 13 1887

Patent



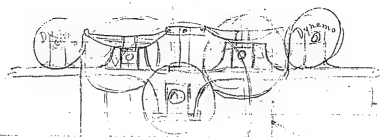
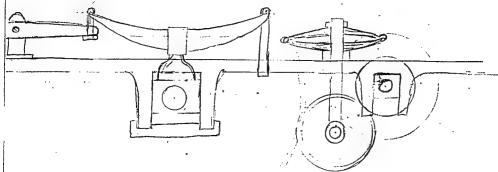
704



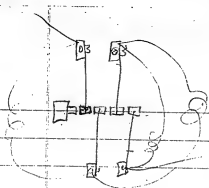
New York,

187.

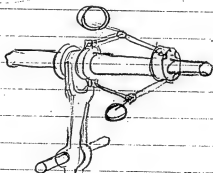
K



18th 1881



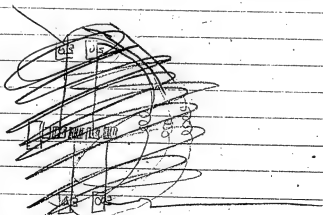
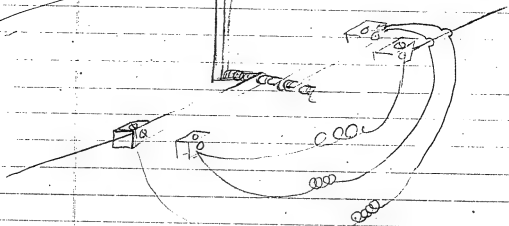
Mall =

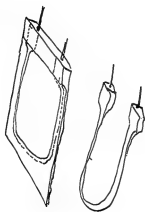


April. 13
1881

FAE

Palmer





photo

April 19 1981

— April 1881 —

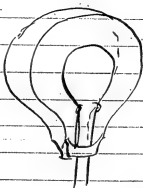
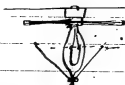


frosted globe

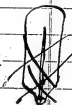
April 19

1881

TAS



flat glass blown
in mould



April 20 1881

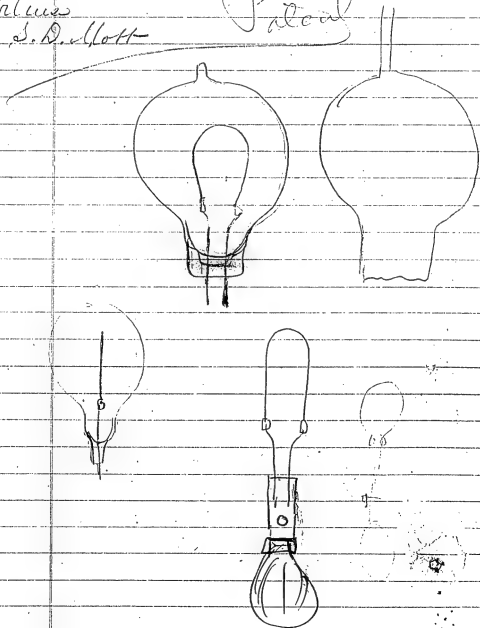
Mott

TAE

Vitruvius

S. D. Mott

Paternal



$$\begin{array}{r}
 78 \\
 140 \\
 \hline
 3120 \\
 78 \\
 \hline
 10,920
 \end{array}$$

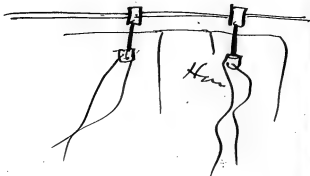


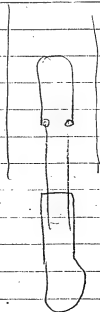
11000.

$$\begin{array}{r}
 3/2200 \\
 \hline
 7000
 \end{array}$$

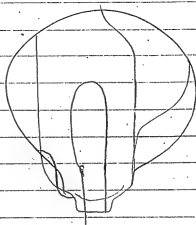


April 21
1881
J. S. Hunt





apple 1541
TAG



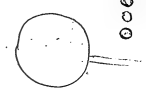
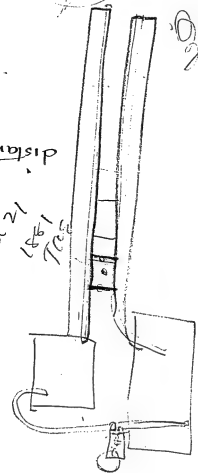
08/5

Murray
Salony

5-6=

habung sip

Apr 21
1861
T.C.E.



16-

ooooooooo



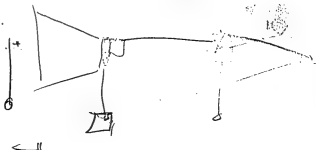
7.

ooooooooo

25

50.

April 27 1881
Tar



April 27 1881 TAE

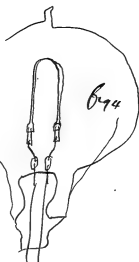
Make this
for patent =



The filament is
broader than it is
thick

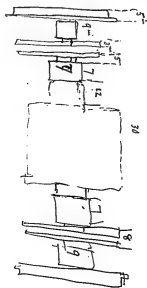


Bent + Contorted in
this shape =



Electro

april 27 1881 Tag



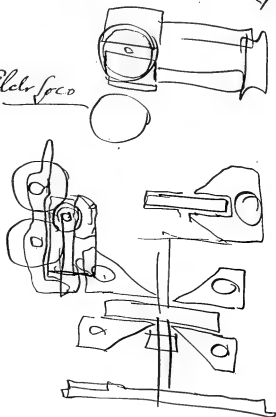
$$\begin{array}{r} 87 \\ 18 \\ \hline 69 \\ 13 \\ \hline 56 \end{array}$$

54.

$$\begin{array}{r} 987 \\ 307 \\ 127 \\ 9 \\ \hline 127871 \end{array}$$

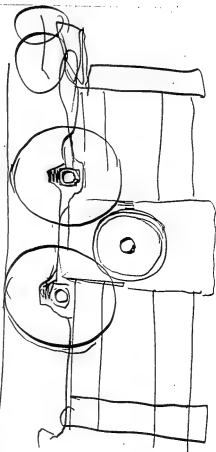
April 27 1881
Tue

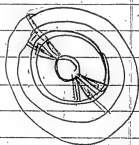
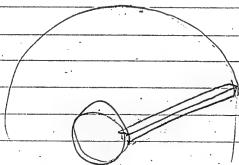
Elle's loco



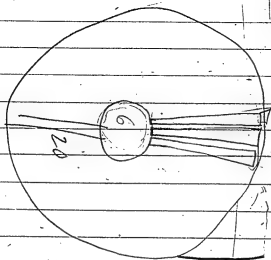
the Loos
April 27
1887

Tae

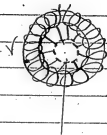




May 10 1861
TAR



$\frac{1}{4}$



006.

45
270

45.

27/100

90.

90.

6 1/2

3 1/2

1.62

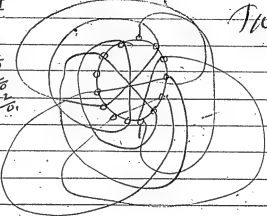
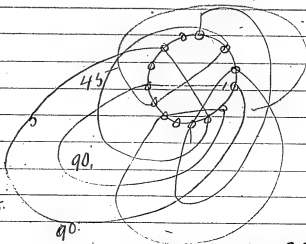
.81

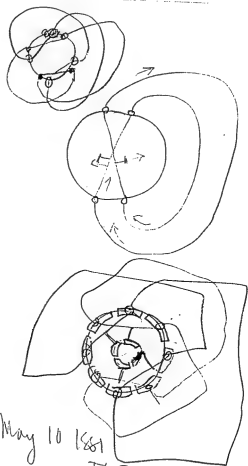
40

45
4
180
2
3.60
2
720
2
1440
2
2880

May 10 1881

Fig

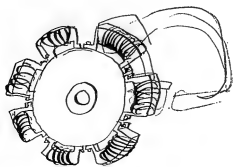




May 10 1881

JAE

— May — 1881 —



May 10 1881
Tah

Ground Glass Lamp end

from Halzer May 16 1881

J. A. E.

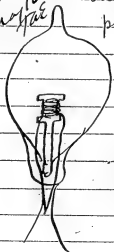
Put burning at 65 18th

May 1881 J. A. E.

Upton to have
following made -

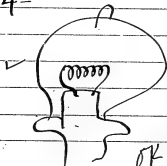
Order given
to Upton May 16 1881

ask Upton if he has started
moulding these penumbra
plates for Carbay -



Sample as in Case
176 - patent 227.229.

get 3 or 4 -



Spiral Carbons

also some with
thread & lamp black & 1/2
roll on -

also 2 with single
thread - not put in
spiral form -

Make 2 Lamps

OK

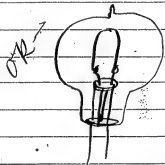


OK

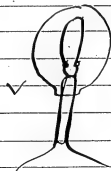
4 Carbons B size in
series -

also lamp 4 B Carbons in Multiple arc

OK

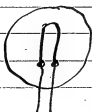


2 of these =



1 of these

Each ~



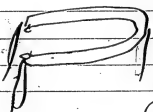
impl

1 of these



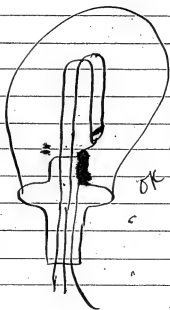
1 of these

like X-

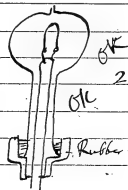


Vacuum Expts

on Carbon loops
Coating +
Carbonizing
get the plate one also



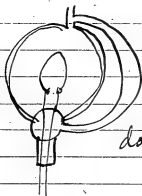
Right angles, Carbons & in series.



2 of these

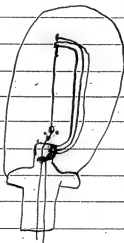
OK

Rubber



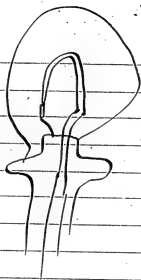
1 of this
double seal

OK



OK

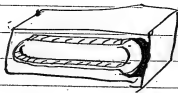
2 of these



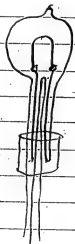
2 of these,

Get some Carbons with Lipumetic Ends on
also Nickel mould where this kind
of carbon was bent & carbonized,

get lot of the wood Carbons & blank



find this



Large Lamp
Colium Hg Seal

Save all those mould where
we Carbonized fibres of
diff. shapes. etc

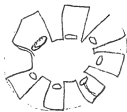


one of these

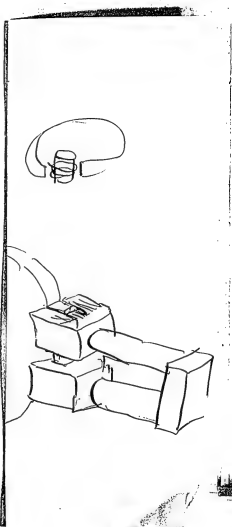
Get some of the lamps with
one side of the carbon thicker than
the other also some of the carbons
this is important -



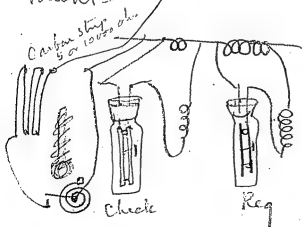
one of these



May 10 1981
Taz



Patent = May 13 1881 JAE

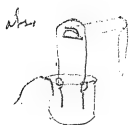


Carbon's hind
 Spring aneroid or other
 Thermometer to close
 Carbon circuit when
 temperature falls too
 low by closing circuit.

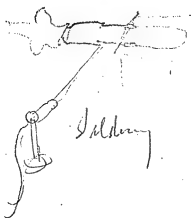
also mention to show cell of C_{100}



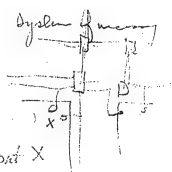
000215



Patent
Moulded socket in
lamp -



System of mounting



Also show new
Cross box
Screen box
Feeder box

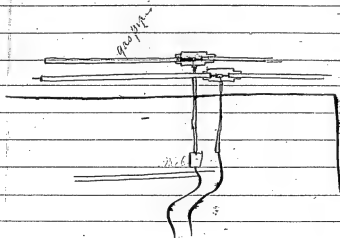
Also device for
main line
br.





May 16 1881

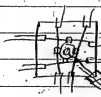
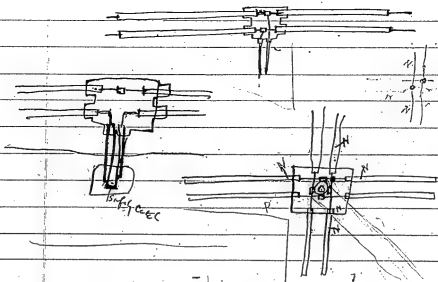
Tag



S.D. Mott

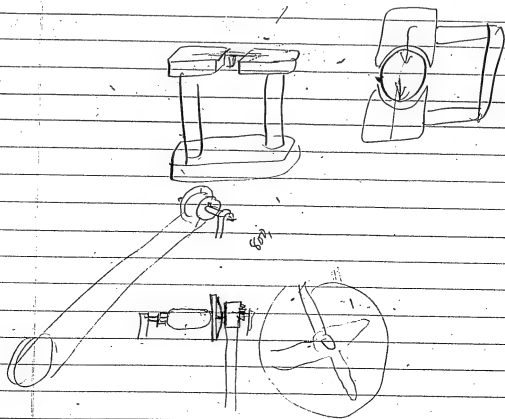


Patent



feeding box





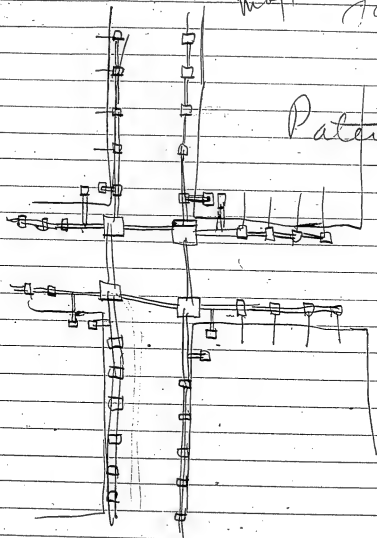
May 16 1881
J. R.

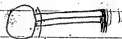
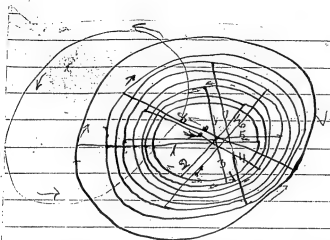
May 16 1881
707

Patent

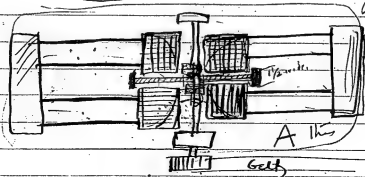
Victims

S. B. Mox



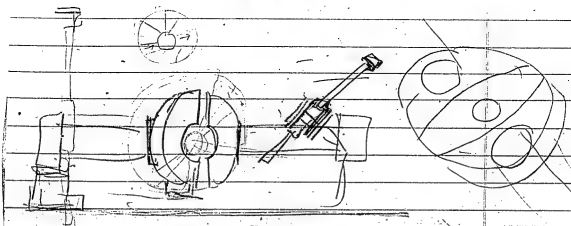


May 16 1881.
JAE



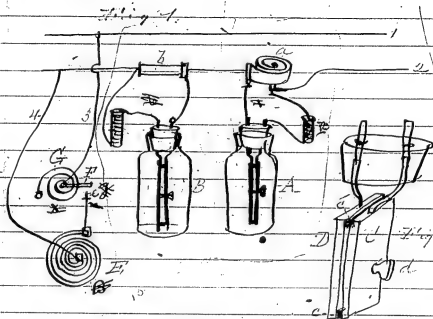
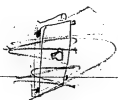
Witness

S. W. Hoff



Cutting Spokes
or radial bars 10. inches

318



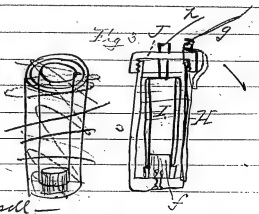
X is spring which when meter gets cold contracts & lever G closes on it throwing the Carbon Resistance Coil B in circuit & heat is generated sufficient to keep thermometer up & meter from freezing. The whole meter being in closed box.

May 16 1881.

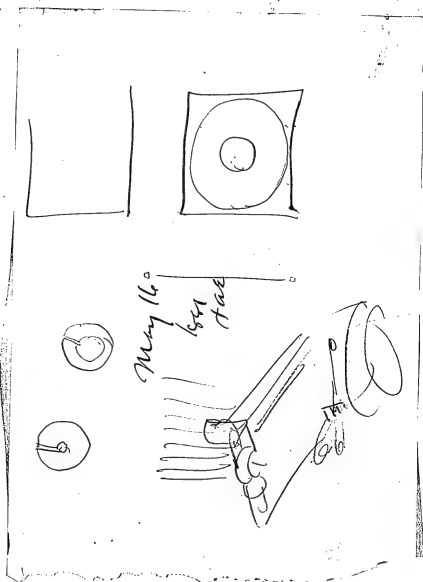
Arthur

S. D. Mott

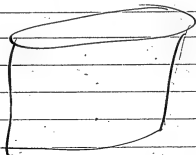
Copper
vessel



— May 1881 —



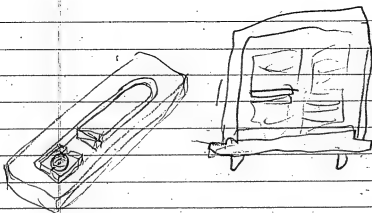
plumber's moulds for Carbury.



May 16 1881 TAE



etc. Various
S. D. Volk



1881



319

Mott

May 16 1881

Witness

S. D. Mott

Fig 1

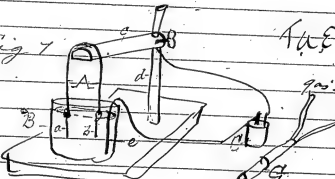


Fig 2

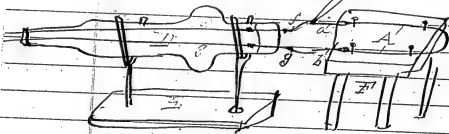
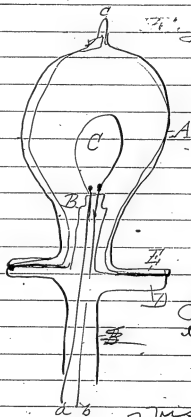


Fig 2

317

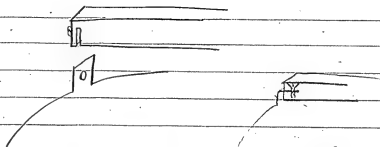


The cane
~~which~~ Sub.
 Such as bird lime
 liquid
~~rubber~~ rubber or
 paraffine grease.

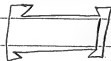
May 16, 1981
 Ted

Antreas
 S. D. Mott

May 17 1981
TAS



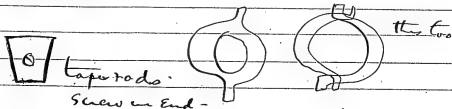
Make detailed drawing
of present steam dynamo -
Class coupling of dynamo
with engine = Swing filler
block = Spiral spring on brushes -



this method making commutator



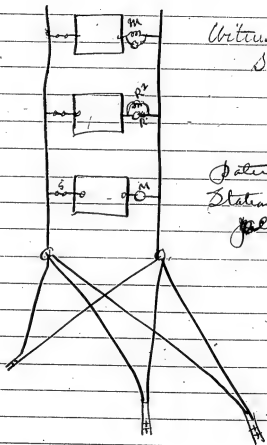
2mc Gases, non magnetic
Gases =



Covering surface iron with mica = mica
between gamma screw -

May 17 1889

108



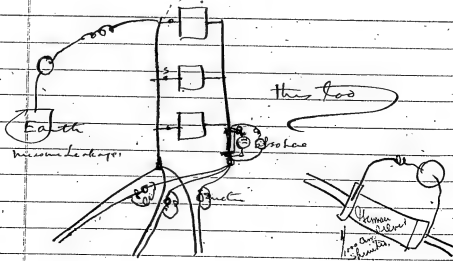
Witness

S. D. May

Patent

Station meters

power to put it



316

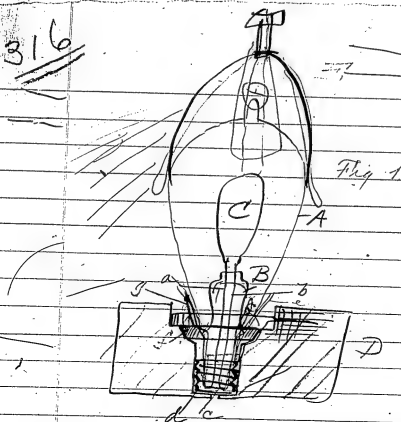


Fig. 1

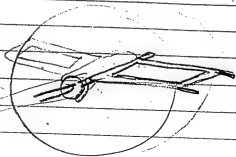
Artures

D. D. Mott

Moulding socket on lamp

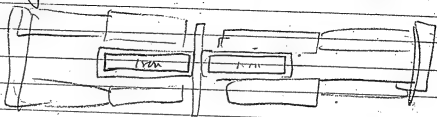
May 17 1861 9A8

Make figure 2 a view of a
 of lamp and
 socket neck socket complete,
 as basis for claim in a
 plan of Paris socket.



May 18 1881 Taz

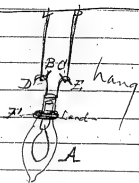
Radial bars like a
printer chase - iron bar



— May — 1881 —

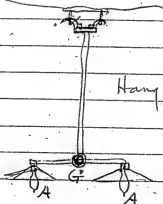
May 19 1881 & a9

321



Vitruvius

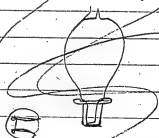
S. D. Mott



Hang bracket



all mounted with
Kerosene Gas Company



Slide in side view

Mine Leg King

Lamp window & Oiler

100 105



Hurder

Horder

Hurder

Horder

Horder

Horder

Henny

Hurder

Horder

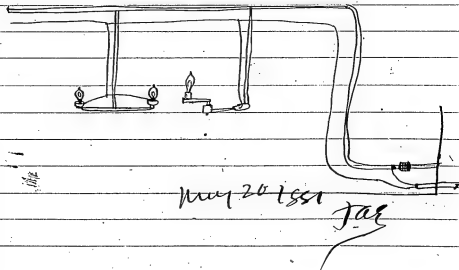
Hurder

Hurder

A 9.45

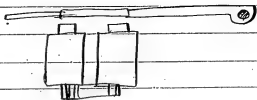
9.6000

9.60000

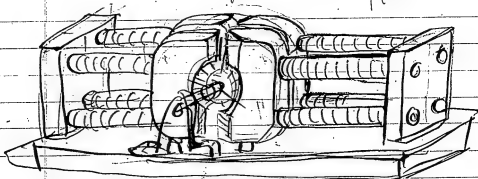


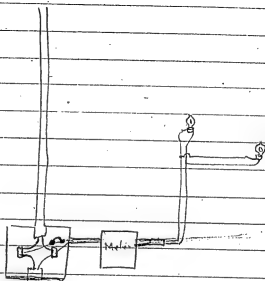
May 20 1881

Jae



Utilities
S. Dill H- Desc Dynamo -
May 20 1881 Tap
this A
Field -

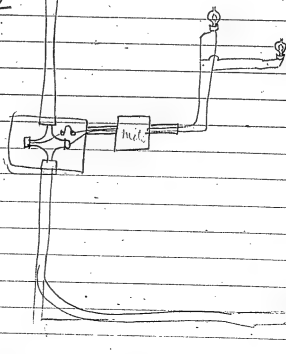


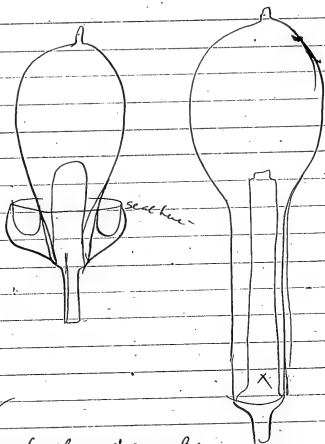


May 20 1881

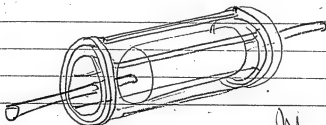
FaE

S.D. Mott

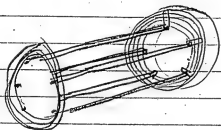
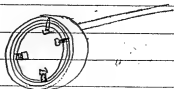


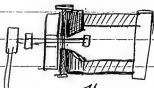


Long bulb seed can be
cut off & used many times
May 20 1881 P. A. G.

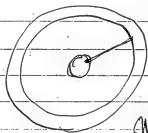


May 20 1961
TAE

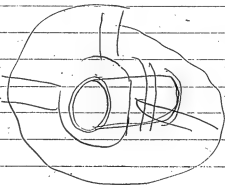




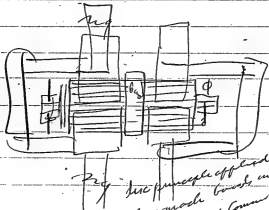
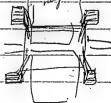
This



May 20 1888 JAL



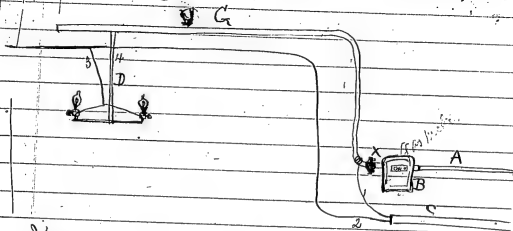
This way we
reg machine for
sanding of plates
very much of plates



reg this principle applied to
reg machine works in middle
but only 1 connection

Case No. 324

Using Gas pipes in Hawaii only



Insulating joint put on Gas pipe at
Gas meter C is the Electric man G
the gas pipe —

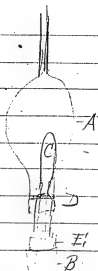
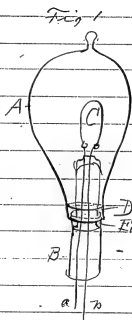
May 20 1881 F.A.S.

Witness

S. B. Moore

322

322



Platina seals
a b

Soldering two platinum
rings together =



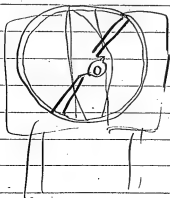
Mitras
S. D. Mott-

m.

May 20 1881 TAC

Put in

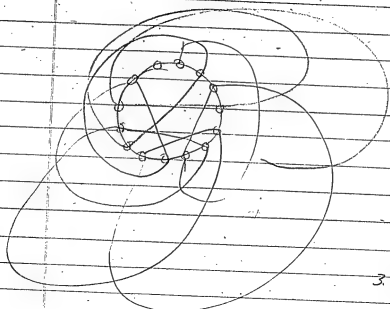
Taken apart
by heat or
acid (nitric acid)



May 21, 1981
JAG

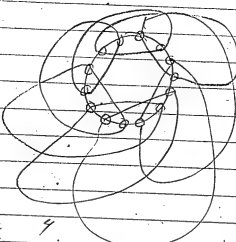


72 - 50,



$3\frac{1}{2}$

May 21 1881
TCH



950
848
102

30
300.
9000.

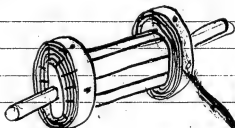
4

3394
25
16970
1480
485

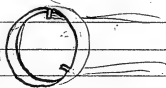
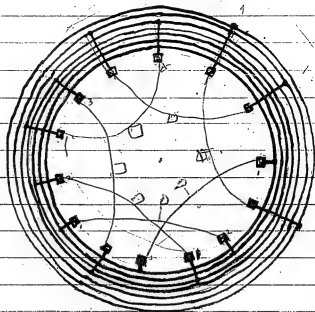
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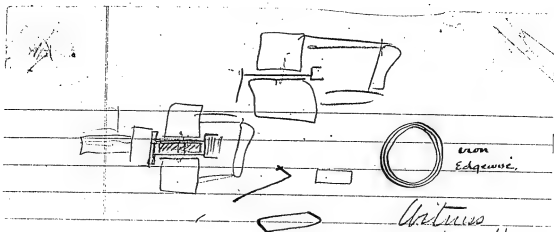


Myra contact
William S. D. Mott



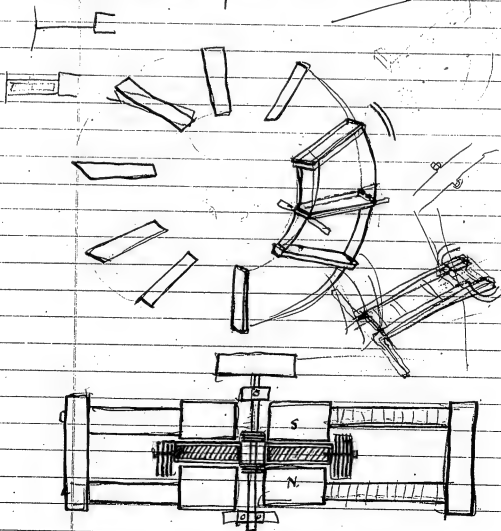
Patent Mott



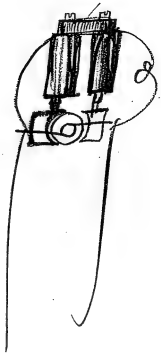
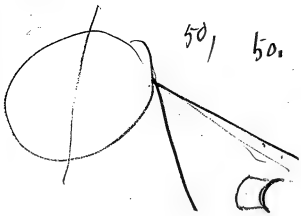
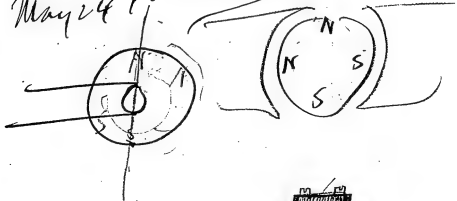


Witness
S. C. McK

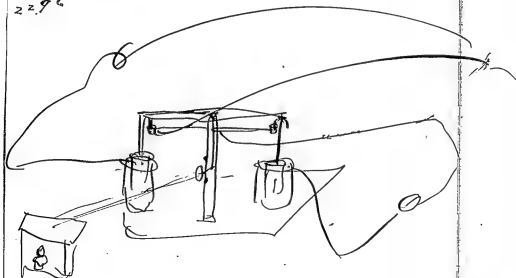
Patent May 21 1881 7a8



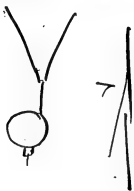
May 24 1881 JAE



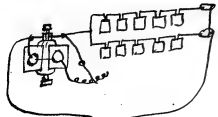
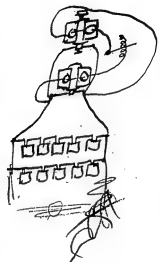
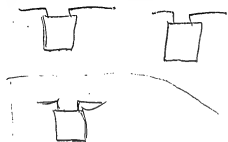
82	82
<u>13</u>	<u>10</u>
246	410
<u>82</u>	<u>82</u>
1066	1230
<u>1230</u>	
2296	



May 24 1881 T43

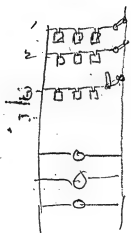
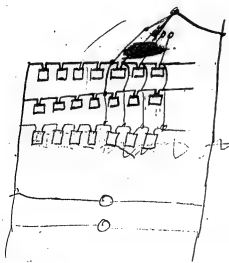


- June 1881 -

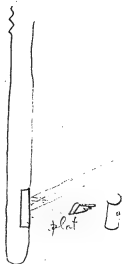
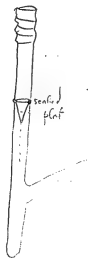


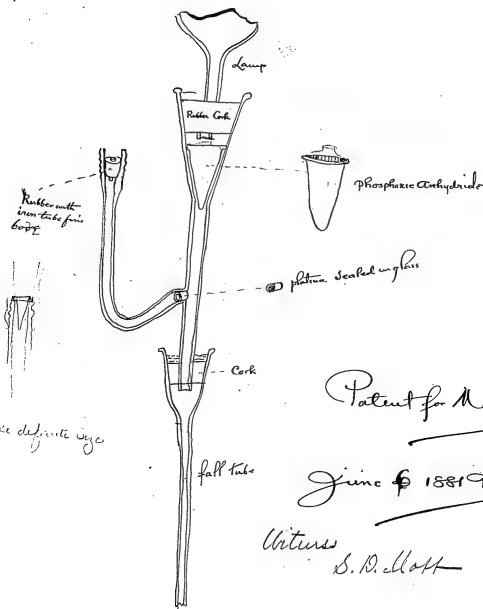
Patent

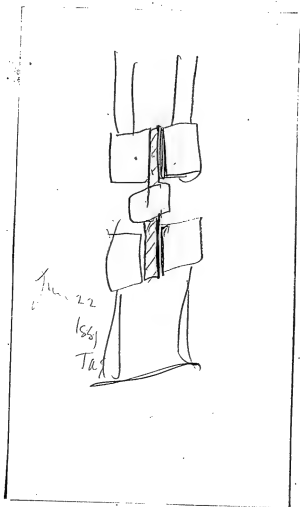
June 9 1881
Tag



June 4 1881
709

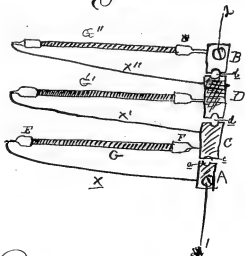






Case 880

Drawing for patent



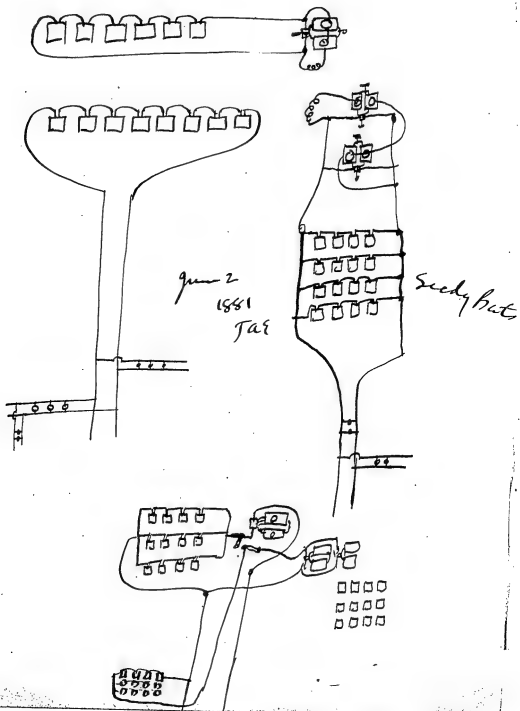
Carbon Phosphat, Copper plated Ends
 plated to the cones ^F are the Ends ^X
 the cones, G the Carbons of plumbago
 or a Carbonized Material =

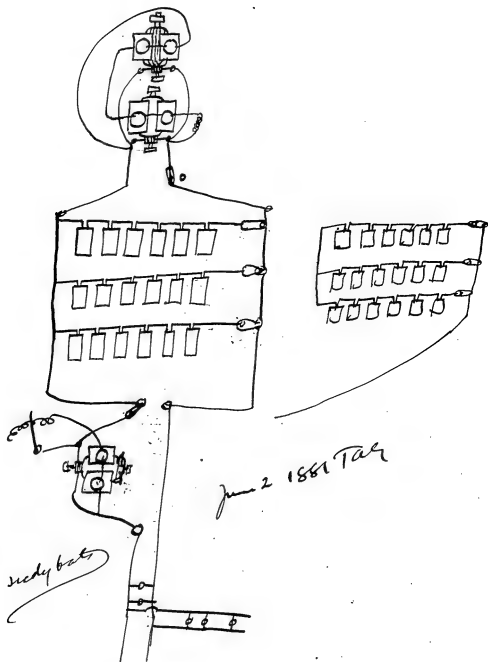
ny June 3 1889 7ae

Witness

S. E. Mott







side by side

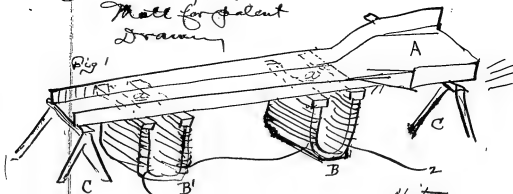
June 2 1881 T.A.R.



June 3 1881 -
Tal
 Mail for Patent
 Drawing

Case 329.

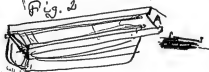
Fig 1

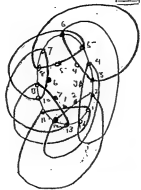
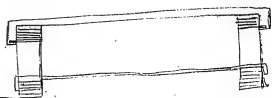
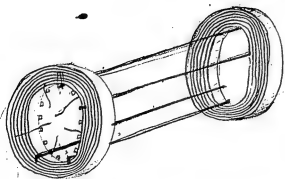


Witness

S. D. McH-

Fig. 2





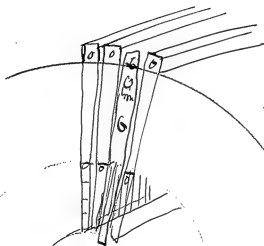
Mott
Drawing Patent

Witness 12
S. D. Mott

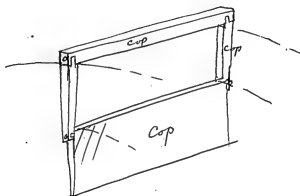


June 4 1881
TAG

1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600



Patent
June 6 1881
J. L. E.

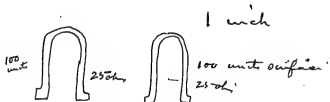
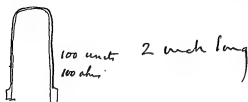


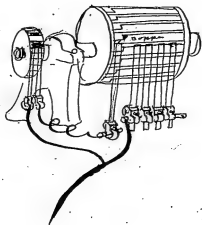
DYER & WILBER,
American and Foreign Patents and Patent Causes. } 519 7th St., Washington, D. C., and 65 Fifth Avenue, New York.

Z. F. WILBER,
No. 65 FIFTH AVENUE,

New York, June 16 1881

Tae
Z. F. Wilber
100
2





New York

July 2, 1881

Witness

S. D. Elliott

DYER & WILBER,
American and Foreign Patents and Patent Causes.

} 610 7th St., Washington, D. C., and 65 Fifth Avenue, New York.

Z. F. WILBER,
No. 65 FIFTH AVENUE,

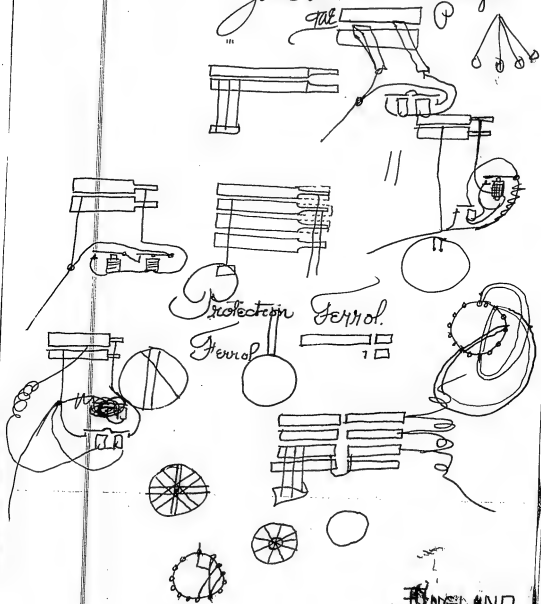
New York, _____ 188



Object to away with the spark
on a Dynamo Machine,

June 30 1881

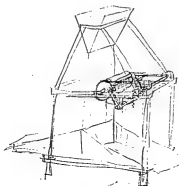
Portugal



1881 plot

June 22 1881

Robert
Chas. A. C. C.



S. B. Bulloff

NO 1

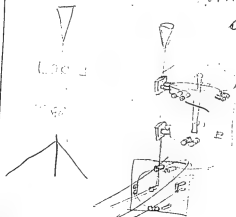


9-4



Utter

S.D. Mott



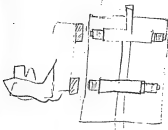
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One Melling

June 22

1881

Tag

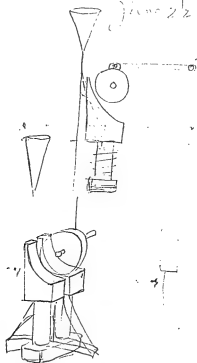


Pennsylvania

Ordnance

June 22 1881

9ae

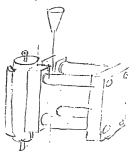
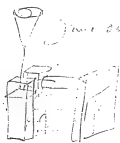


Revent

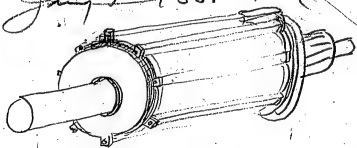
Revent

June 22, 1961

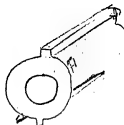
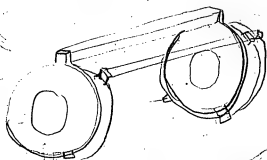
ckf



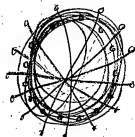
Patent
Jan 5 1881 T.C.

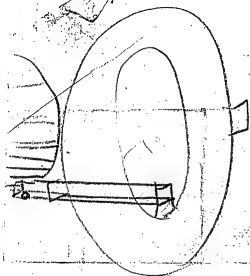


W. H. B. J. J. J.

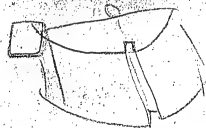
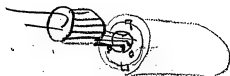
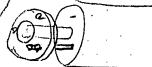
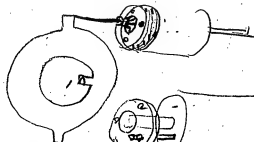
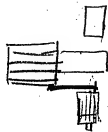


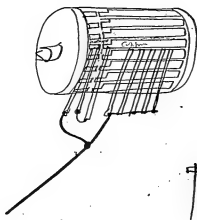
Patent



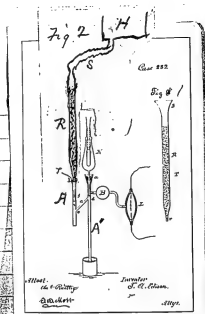


2-
14





Wetters
July 2^d 1881
J. B. Mott-

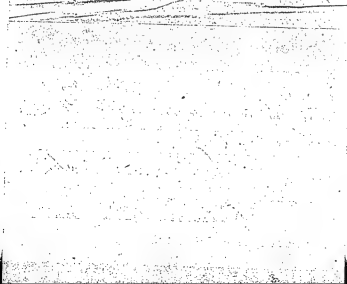


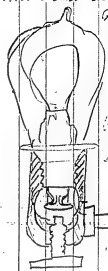
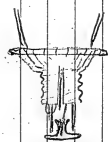
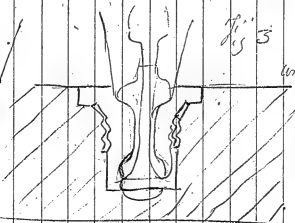
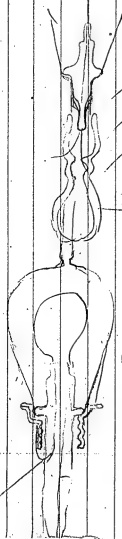
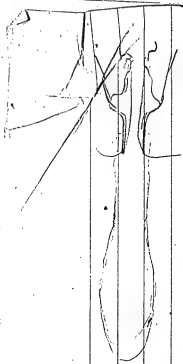
Based on drawing, take 282 as
 a base, make Figure 2 as
 shown therein but change
 numerals & call it Figure 1.
 Make change Figure 1 in 282
 as indicated above and make
 it Figure 2. The change is
 to have tube R in the path
 of the mercury, its small
 end being in the upper end
 of dropper first drop tube A while
 its upper is connected by a
 tube S to a reservoir H of
 mercury.

Letter a in sketch
 above - Return this with
 drawing

22

Printed
Oct 1881

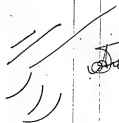




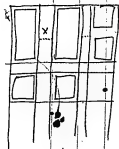
I claim the use in the
body of a non-conducting
work pump or other suitable insulating
component which are hardened
or drying without or without
compression - Method means
of giving the glass part a shape
aboutment it must it's becoming
those things - I show 2 methods
that as shown in figs 1 & 2 in
conductor with first claim - second
method in which no
mechanical component
is used

Liquid nitrogen
Apparatus for
freezing glass
in cold

D. D. Blott
22nd Oct 1881



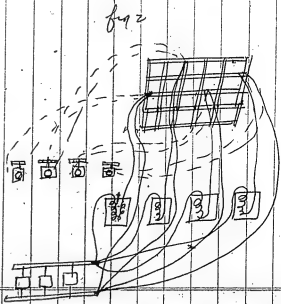
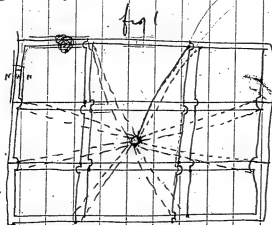
Septalissat



Cross man at x in
Long block to equalize



- lens for Emf
fig 3



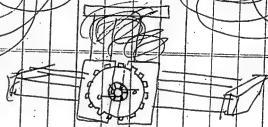
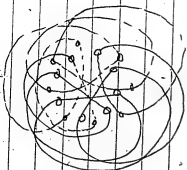
Regulating barrel
g. scalars

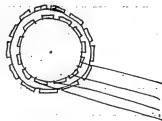
plate Dynamo Sept 6 1880

TAE



for Matt



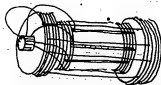
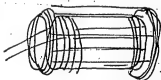


Robbin for Dynamo.

Matt for Patent.

Sept 10 1881 TAE

2/2



Sept 10 1887

Tal

Dynamometer

Dyer see if I have then
if not apply for patent

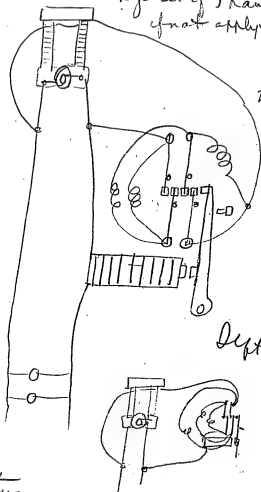
Patent

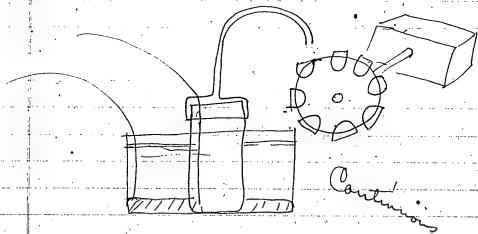
Sept 16 1881

765

Witness

S. W. Mott





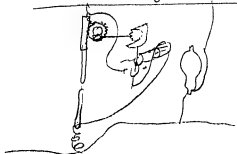
Mercury Meter
Sept 9 1881 925

Sept 17 1881 TAE Edison

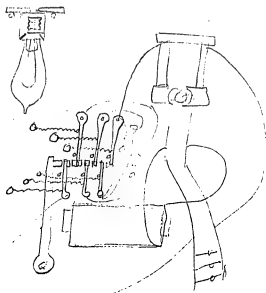


Revolve a magnet around the
carbon so that the are will
revolve instead of the
carbon -

Put a battery regulator lamp
with carbon feed in Multiple arc

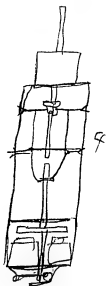
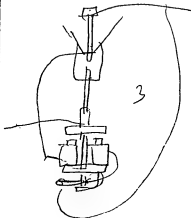
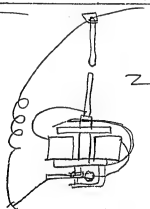


Sept 17 1881 - 729

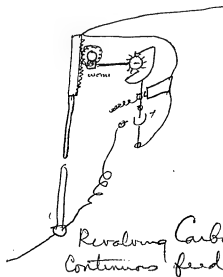
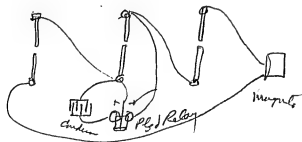


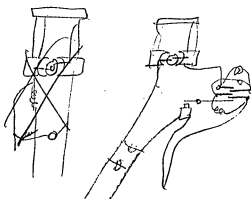
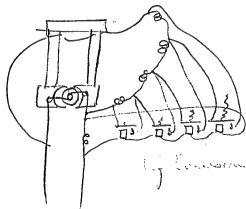
3 socket in large Socket

arc lamp
Sept 17 1881
TAE



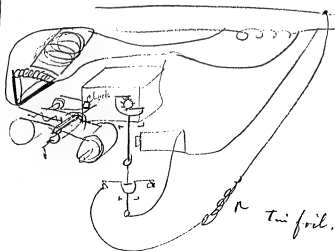
Sept 17 1881 arc lamp





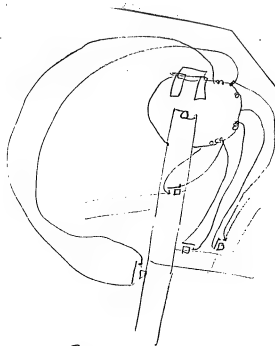
OK
Automatic Regulator
Sept 17 1881 TAF

Metre Sept 17 / 1881 F.R.S.



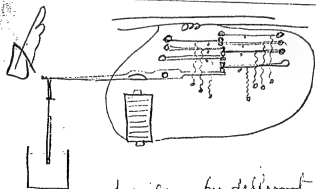
Circle - attraction
Current of $\frac{1}{2}$ of
frequency



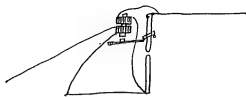


This

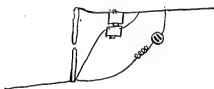
Edison Machine Works,
104 Goerck Street,
New York.



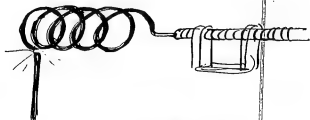
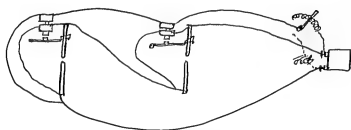
dissolving by different
 immersions - silver in
 cyanide or Copper in
 cyanide of Copper or
 these three metals in NaCN



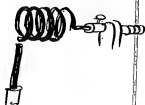
Hym 207 cat

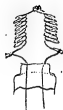
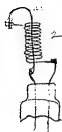
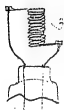


Sept 28 1881
TAY

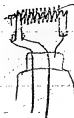


4





Claim Vertical Coil - Coils arranged to form
 arch. 2 coils placed together, ~~vertical~~
 Coil with conductor of carbon running through
 center.
 A spiral formed of wood or wood ^{material} ~~form~~
 with thickened ends. Coils are arranged in
 a spiral form ~~arranged by placing~~
 above



~~As~~ Patent

Nov 25 1887



Medium can
 all be made



Fig. 2551

Reaction in this case
that respiration produced
by the fusion of an easily
oxidized



Fig. 2552

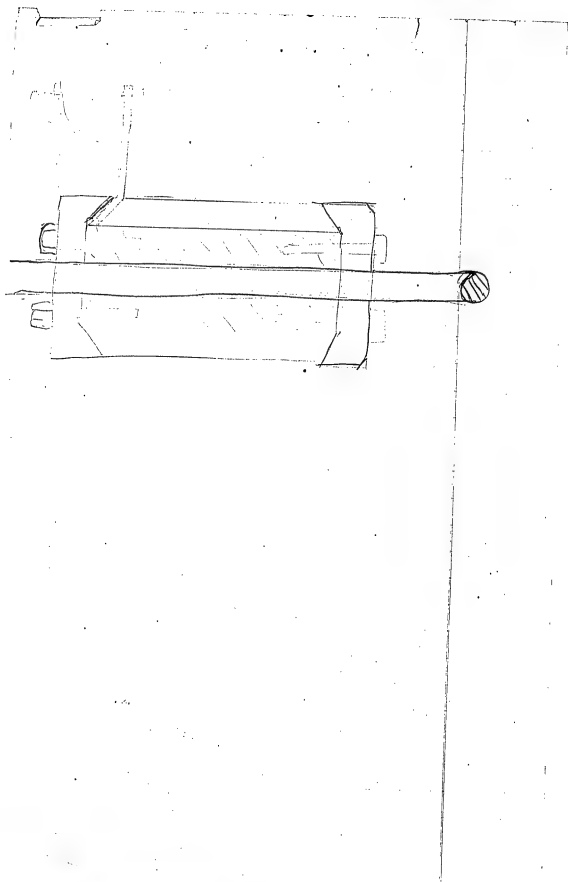
in connection with
indicator of condition for
in electrochemical reaction



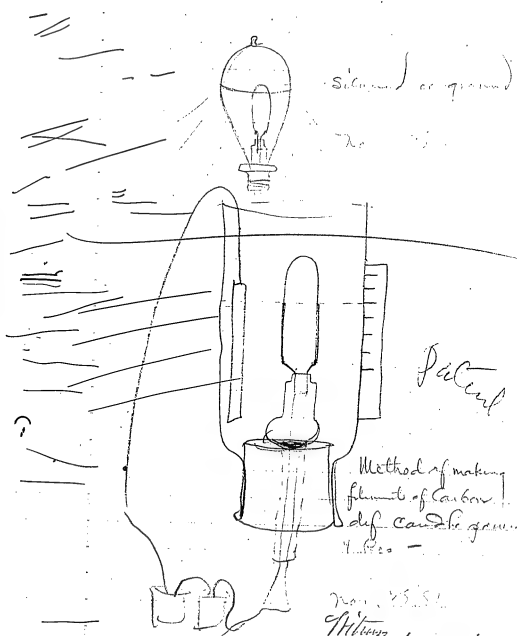
Fig. 2553

this
decrease leading to
crossing





Patent.



Silicon or quartz

Patent

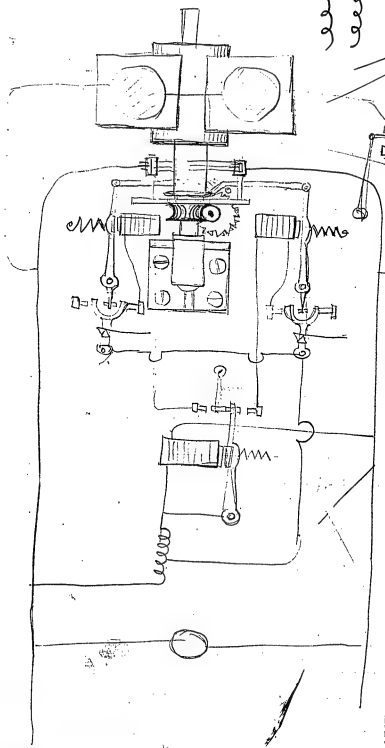
Method of making
filament of carbon
def candle glass

Nov. 23. 1881

Witness

S. E. Mott

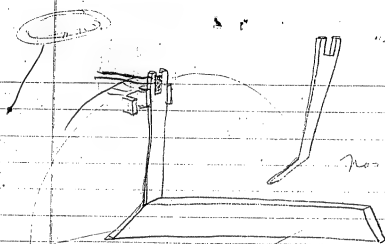




Hand-drawn scribbles and wavy lines, possibly representing sound or motion.

Hand-drawn scribbles and wavy lines, possibly representing sound or motion.

p.

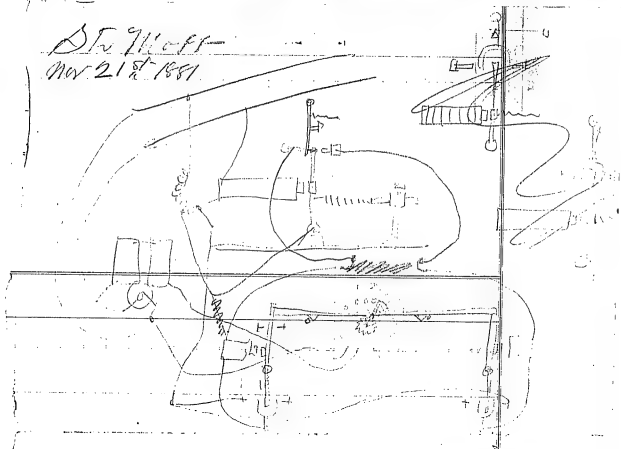


no 15/51

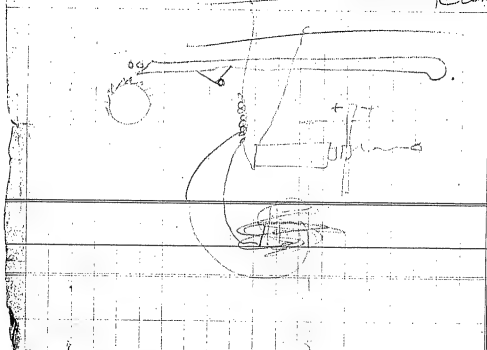
Commutator 2 dynamic



St. Hoff
Nov 21st 1881



Mills Park N.Y.
Nov 20th 81
Witness Rich. A. Dyer



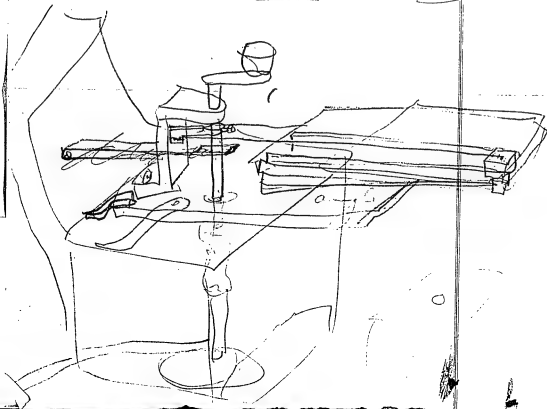
Witness

St. S. Paper

Dec 19 1881



Tag



312

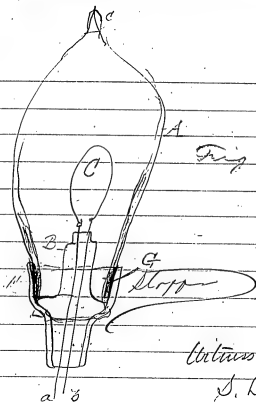
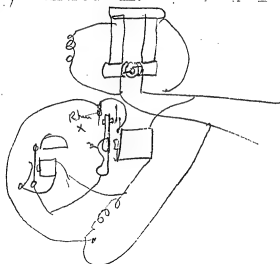


Fig 2

A2

Witness

S. D. Mott



R at x to make bell weaker when
lights low & strong when lights
high -

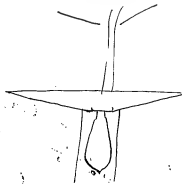
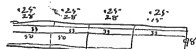
The Edison Electric Light Company,

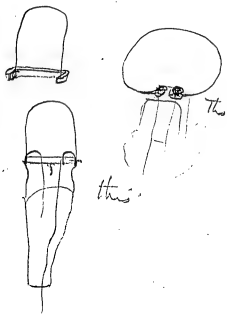
65 Fifth Avenue,

Morris Green, Pres.
S. B. Edison, Vice-Pres.
E. P. Fisher, Treas.
C. Braden, Secy.

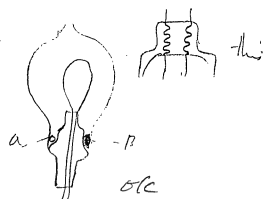
New York,:1881

27
28
3
84





this



etc

a pumice soaked in Napththalin
 B Coconut charcoal to absorb Hydrogen

~~see of rubber in contact with~~

See if can get design patent



Clay in nickel ~~plated~~ palladium
 gold plated copper or iron wires
 for sealing in glass =



plates porous soil. coated with
 gutta serena -

also cement composed of
 anhydrous phosphoric acid in
 fine powder & Caustic lime,
 fresh burnt, put in a dry state in
 layers & mounded it hardens
 then another layer

Basic to my thesis,

2183

5879-

2181

2182

Roughen inside glass by floric.

Also inside part pour the Cement in

also glycine mixed with glue

Matter Sulphur -

glue water oxide zinc

2204.

2213

2238.

Lawson to keep on trying deposit

Also on also, Zincum in by

Electrolysis - See Gore Phil
Magazine -

See if my Electric R.R. has been
in application in office. first
make application as - NO = make
drawing

Enter
See about Rowlands application
+ Contract



Enter will see his father

See what is about collecting
attention of office about granting
that Dynamite like Brush when
I had application in, also

punching Carbons elements from
Carbons See my Graphite Case -

About preliminary stations in

about Edison Johnson Magnet don't
forget old Domestic Magnets box when I had it

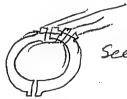
Clamp end on brushes Explain
why. ~~2~~

ascertain: absolutely if mica
insulation is secured in foreign
circuits =

Have Kuzi get Matt blue print of
new Safety Catch box for block camera;

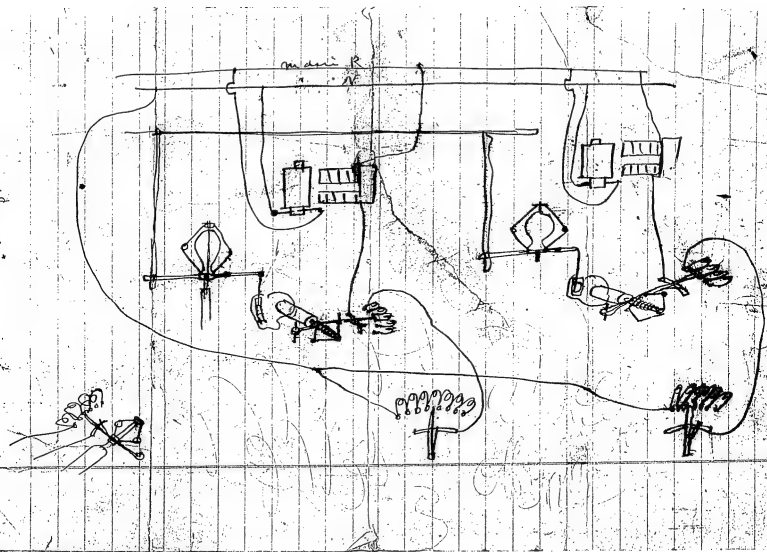
See if all organic ~~to~~ ^{to} compounds
is secured for Carbonyl

Clamp a clamp with carbon
in it and are setting arrangement
of a metal, search plat gold
See Dentistry



See if this ok

4/16/68
RSC-97-2



Claim the methods of increasing the efficiency
economy of a dynamo machine by increasing
the power of the field magnets. One of
magnet abnormally large in the present
state of the art.

I am not aware of any dynamo machines giving
Continuous Current ^{with direction of current constant with time}, where there is a single
Electro magnet for a field with polar extension nearly
covering the cylinder; ~~there~~ I am certain there is
none with great length of core. The practice is
to use two short field magnets quantized together
which does not increase the length but only size.
and I have ~~discovered~~ that instead of ~~the~~
~~the~~ following this ^{now} unusual practice, the
two fields were arranged so that they were
not quantized but made as one long magnet
~~and~~ it would increase the efficiency
of the machine, as the extending power of
the lines of force increases with the length
of the magnet and the quantity of number
of lines increase with the weight of the
lines. By reversing the common practice
I obtain great extending power of the lines of force
by length of magnet - to make up the loss in the
number of lines of force by increasing the length I
at the same time increase its mass - by this means I
have obtained machine giving an efficiency of 96 percent

⑧

100

190) 2660 (140
19
76 560
680

19) 2960 (155
19
106
150

Technical Scrapbook, Cat. 1148

This scrapbook covers the period January-December 1882. The entries are by Edison and relate primarily to electric lighting. Included are notes and drawings concerning lamps, generators, meters, regulators, electric power distribution, and other parts of the system. There is also some material pertaining to electric railways and to mining lamps. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney, and to Samuel D. Mott, his patent draftsman. The case number of Edison's patent application has been written on some of the items. Some of the notes and drawings at the beginning of the book were dated by Edison's patent attorney, Henry W. Seeley. These documents bear dates of October or November 1882, the date that Seeley received them from Edison.

Patent

Case 531

New process for obtaining Electrical
suitable for large industrial
operations =

Form electrodes by moulding
an oxide of lead around a lead
core and Reduce the oxide of
lead by a reducing agent +
heat, to the metallic state, to
form ~~the~~ one of the electrodes.
The other electrode is subjected
to a chemical process whereby
the oxide of lead is oxidized
to the higher oxide, when
current is run through the
two different electrodes are
~~formed~~ placed in a cell
containing H_2O_2 acidulated
with SO_4 after the great
portion of the peroxide of lead

has been reduced to Red Lead
& the metallic lead of the
other plate oxidized.
The plates are taken from
the cell & the one which is
oxidized is dried & reduced
to metallic lead again by
heat & a reducing agent
when the other is again
peroxidized —

The peroxidation of the Electrode
is obtained by acting on it
with Chlorine in an acidulated
solution, the lower oxide being
raised by the action of the
Chlorine to peroxide of lead

N.Y. Dec. 11, '82

Wm. Seely.

For as so made up, the same as made
inert to Oxygen. The metal is not

Patent,

Improvements in plants Accumulators.
I make ^{the} plate by moulding
an oxide of lead preferably Litharge
~~around~~ which is to be mixed with
water or gum water around a
sheet of lead having arranged
surface ^{forming projections} & containing many perforations.
The whole is made solid by great
pressure in a powerful press,
the plate or plates are then
placed in a chamber or
tube and a reducing gas
such as Hydrogen ^{all gas or other reducing agent} passed through
the chamber; heat is externally
applied and the whole of the
oxide is reduced to metallic
lead which being very porous

A Battery made with this material
should not be charged to a
point where the voltage of
the Lead of the plate
is converted electrically
into the oxide - the central
web of lead is not essential but
it forms practical breaking
chain, the formation of the divider
for secondary battery consisting
in moulding ^{by pressure or other process} ~~an~~ salt of lead
leads the form down &
then chemically reducing
the lead to the metallic
state for pump - etc -
central web to make good contact,
Integral etc etc

Patent Case 029

Improvement consists in providing
a coating to the filaments of
Carbon electrodes with differently
oxidizable & electrically
electrical carrying

I accomplish this by first
exhausting the globe containing
the filament of Carbon & then
cause a volatile salt of Silicon
to pass into the globe such as
chloride of Silicon. The
filament is being heated to
incandescence by the electric
current when the decomposition
of the gaseous chloride of Silicon
takes place the Silicon is deposited
upon the carbon forming it a

Surface like Silver

Claim

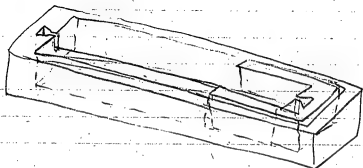
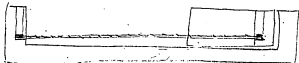
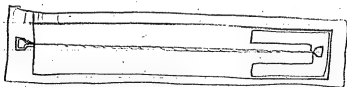
Coating a filament of
Carbon with Metallic Silicon
in the manner & for the
pur

Wm. Dec. 4, 1882

Wm. Deely

Dense, reflects light in all
directions, does not absorb heat with
extreme rapidity, does not conduct heat. Resists
electrical action, does not burn, it has
carbon. Vacuum pans or inert
gas not wholly inert, film
oxide.

add to twisted fiber
case. mould for take
contraction.



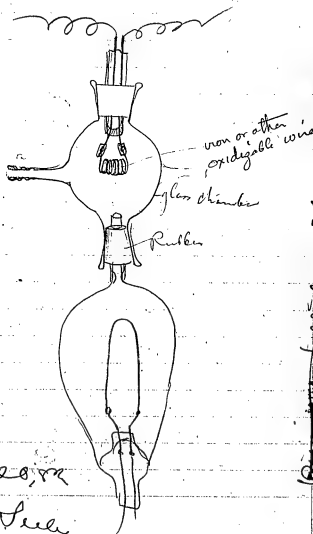
W. H. S. S.

Nov. 23 1892



exhaust with hand pump
at a. Then heat wire, which
absorbs O by oxidation leaving
N at pressure needed.

gases introduced by separate
tubes. Carbon instead of iron. Gases
decomposed and the purified, nitrogen left.
If carbon used with air, carbonic
oxide would be formed. no.



Qty. Nov. 20, 1911

W. W. Seely

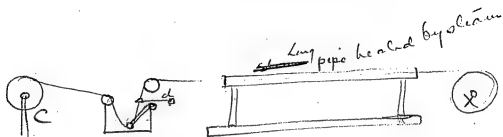
gases introduced by separate tubes

I take cotton covered wire
and pass it through a
bath of boiling Japan
Varnish & afterwards bake
the wire by heat, for several
hours afterwards the
same operation is twice
or more times repeated
until the surface of the
wire is smooth & highly
reflective of light.

Of very heavy insulation
is required I coat the
wire with cotton ^{paper packing} as before
or other suitable material

jaw the covered wire through
the bath of Japan varnish
afterwards baking the
same, this is repeated the
operation until the glossy
surface appears I then
cover this with paper ^{Cotton}
or other material &
repeat the operation of
Varnishing & Baking
Thus I am enabled to
put a very heavy coat
of a very high ^{dielectric} & tenacious
material which will
permit of rough handling

The wire so coated is
very useful in winding
the rotating bobbin
of Dynamo Electric
machines, as the insulation
is very high and it stands
very high temperature
without softening. It also
radiates heat with
great facility being
black,



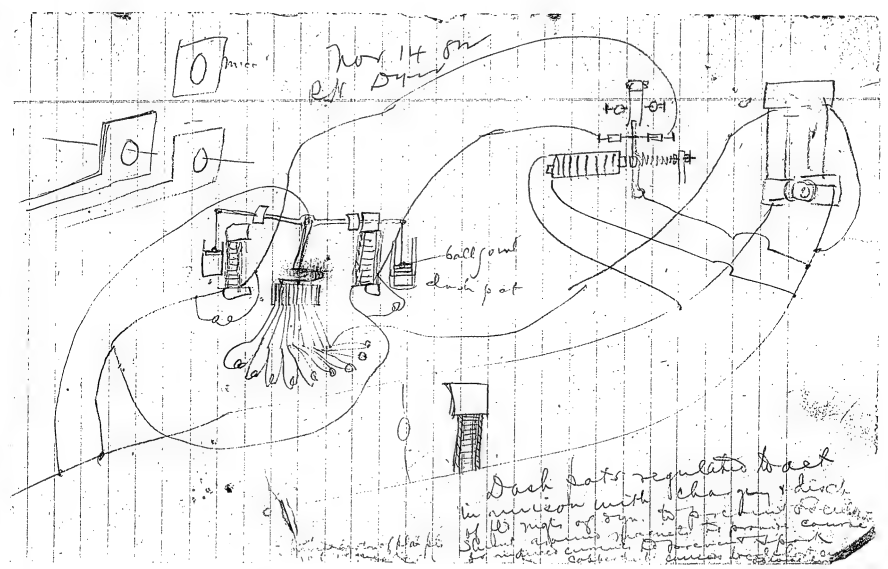
Wire passes through the hollow pipe which
is heated by steam - and dries sufficiently
to permit its being wound on the reel X
without sticking B is the bath - C the
Coil of wire & the stripper to wipe off

The surplus varnish -

New York, Nov. 14, 1882.
Wm. S. Searcy

10

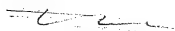
Nov 14 on
Rt Division



ball point
desk pot

Each sets regulates back
in unison with charging & disch
of 10 mts of org. to provide for
stabilizing current to power source
or requires current to power source
or requires current to power source





2



AA

Patent.

I take several long thin fibres such as Ramie
twist them together ^{to form a thread} and secure their ends by
a plastic compound of Carbon & sugar or Hydrocarbon
+ Carbonize the filament under strain or
pressure or both. —

This produces a filament consisting of a great
number of ~~separate~~ individual but continuous
fibres and gives a very elastic & even filament

Claim ^{1st} A filament for Carbonization
formed of a number of continuous fibres.

2nd A ^{flexible} filament of Carbon formed of
a number of continuous fibres.

3rd A filament the ends of which are
aggregated filament by a plastic
Carbonizable Compound.

4th A flexible filament of Carbon
formed of a number of continuous
fibres placed in a glass chamber
made entirely of glass from
which the air has been exhausted
etc.

Aug. Dec. 6, '88
H. H. H. H.

See 4

I gave you a patent to write where I used
several the continuous fibres
add-

The fibres may be laid straight and carbonized
and afterwards ~~the proper number of tubes~~
^{they} may be twisted together tightly by
means of the Carbon Ends and while so
twisted are clamped in the clamps upon
the leading in wire of the lamp and
may then be electroplated thereto while
the fibres are under torsion. If the fibres
have been twisted previous to carbonization
they must be ^{to} twisted & placed
under torsion while being sealed into
the lamp.

Addition of
 Fractions

$$\begin{array}{r}
 21 \\
 57 \\
 \hline
 78
 \end{array}$$

$$\begin{array}{r}
 51.62/29 \\
 78
 \end{array}$$

$$\begin{array}{r}
 141 \\
 96 \\
 \hline
 237
 \end{array}$$

$$\begin{array}{r}
 11 \\
 96 \\
 \hline
 107
 \end{array}$$

$$\begin{array}{r}
 180 \\
 96 \\
 \hline
 276
 \end{array}$$

$$\begin{array}{r}
 851 \\
 96 \\
 \hline
 947
 \end{array}$$

$$\begin{array}{r}
 211 \\
 96 \\
 \hline
 307
 \end{array}$$

$$\begin{array}{r}
 1178568 \\
 96 \\
 \hline
 1178568
 \end{array}$$

$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

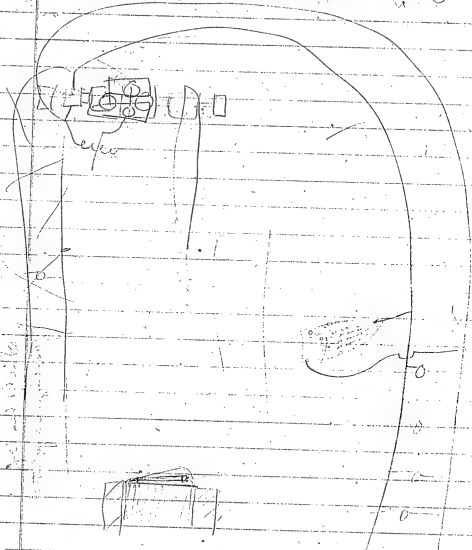
$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

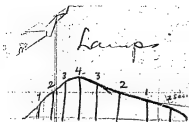
$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

$$\begin{array}{r}
 222222 \\
 96 \\
 \hline
 222222
 \end{array}$$

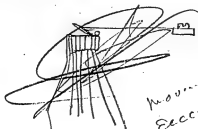
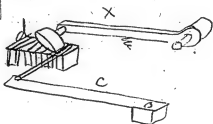
Detail of Component



Detail of Component



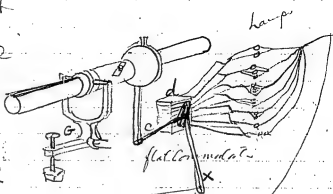
Curve showing
acceleration speed
due to explosion in
gas Eng. 2 means how
2 lamps thrown in



Moving G shaft
eccentric

Zeely Dont
forget about the
gas Engine Regltn
Lamp first out,

for how some figu-
rations



dynamos

BERGMANN & CO.

100-112 WOODSTOCK SQUARE, N.Y.
(BY APPOINTMENT.)

MANUFACTURERS OF EDISON'S INVENTIONS,

EDISON'S ELECTRIC LIGHT APPLIANCES A SPECIALTY.

New York.

1883

Seely.

Write patent on method of ~~rendering~~
Equalizing the Electromotive force of Dynamo
Machines driven by Gas Engines -

Gas Engines are worked by explosion &
The Speed is consequently irregular
The Engine accelerating at each explosion
Causes the light to increase in intensity
To obviate this I place upon the ~~reciprocating~~
rotating portion of the Engine an eccentric or Cam,
which cam may be set in any position. a strap
over the Cam carries a rod or arm which
serves to close ^{and open} an Electric Circuit.

The cam is so set that at the moment of
explosion the circuit is closed & a number
of incandescent lamps are thrown
across multiple arc in a circuit
where there are other lights. The effect
of adding these several lights or
wire resistances equalizes the
check the rise in Electromotive force
due to acceleration due to Explosion &

BERGMANN & CO.

108-112 BROADWAY, N.Y.
(BY APPOINTMENT.)

MANUFACTURERS OF EDISON'S INVENTIONS,
EDISON'S ELECTRIC LIGHT APPLIANCES A SPECIALTY.

New York,

1888

²
this under the lights constant notwithstanding
the Engine runs irregularly.

If an Otto Gas Engine is used the gas and
air should always have the same proportion
as the amount of gas is diminished the
relative proportion of the air should be
diminished in this manner an explosion
can be made to take place at every revolution
and the compensation due to throwing on
lamps or resistance, perfectly -

Instead of throwing resistance
across multiple arc at the moment
of explosion the circuit controller
may throw resistance in the circuit
& thus accomplish the same purpose

In case
of ~~the~~ ²¹ Where explosions do not occur at
every revolution, a ~~small~~ ^{small} governor
may be used the movement of the sleeve
of which throws resistance in or out
of circuit or across multiple
arc;

It is obvious that motion may be derived
from any part of the gas engine or

BERGMANN & CO.

— 100-113 WOODBURY STREET, N.Y. —
(BY APPOINTMENT.)

MANUFACTURERS OF EDISON'S INVENTIONS,
EDISON'S ELECTRIC LIGHT APPLIANCES A SPECIALTY.

3 New York,

1888

attachments connected therewith to
Control an electric contact device
whereby Compensation for difference of
speed may be attained -

~~Even an electric contact~~ The electric compensation
device may be placed on any mechanism
controlled or operated by the gas engine
for instance on the shaft of the
dynamo itself -

~~It is an electric contact with armature~~

Claim Very broadly a circuit
controlling device on a gas engine
or mechanism controlled thereby
for compensation for intumescence
due to explosions -

This is entirely novel & Prof. W. A. Popen
reports that it works beautifully.
It is very valuable in England
so prepare an English & French
Continental act -

BERGMANN & CO.

100-112 WOODEN STREET.
(BY APPOINTMENT.)

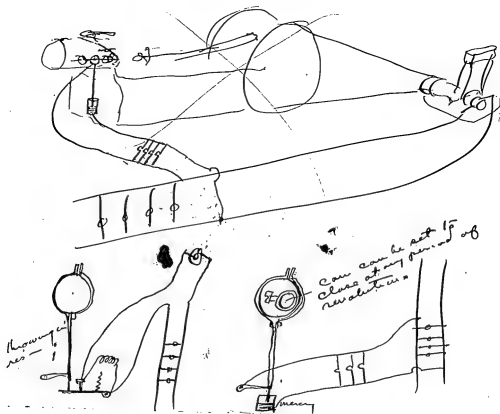
MANUFACTURERS OF EDISON'S INVENTIONS,
EDISON'S ELECTRIC LIGHT APPLIANCES A SPECIALTY.

4

New York.

188

Get Schlesinger & Shum's Catalogue
or cut from Clarke's Book. I think he
has a description of the Otto Engine
with drawing in some of his
books & on the rotating shafts that
lifts the inlet cock put an eccentric.



BERGMANN & CO.

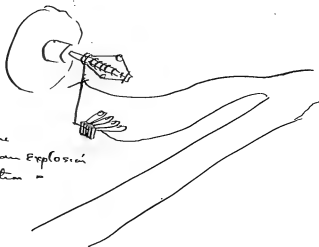
— 108-112 GOOSBEN STREET, —
(BY APPOINTMENT.)

MANUFACTURERS OF EDISON'S INVENTIONS,
EDISON'S ELECTRIC LIGHT APPLIANCES A SPECIALTY.

New York,

188

to —

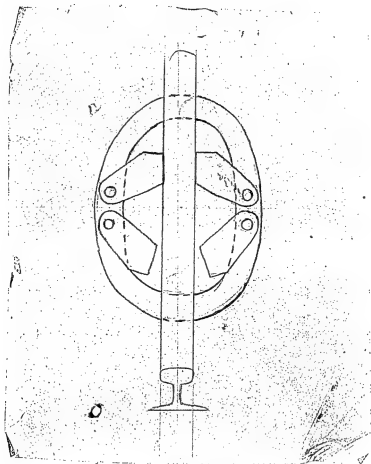


device where
there is not an explosion
Every revolution =

J.R.

New York Dec. 1, '88

V. W. Wiley



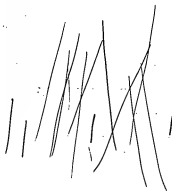
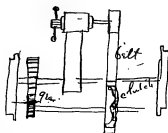
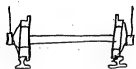
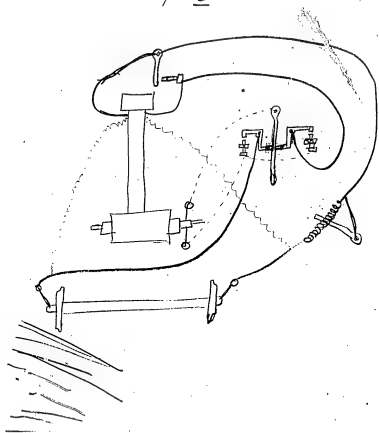
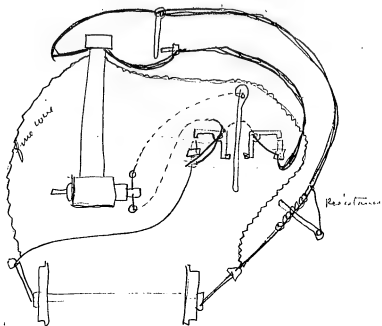


Fig 1



T. A. EDISON,

Menlo Park, N. J., 1881.



Mention that the coarse
wire may be multiple and
across the circuit as well
as the fine wire may be
disconnected after loco is
started leaving fine wire to keep

upfield -

3

Current passing through it,
to produce the repulsive field
owing to the counter EMF^{force}
of the revolving armature
but if this was slowed
up very much the fall
off of the electromotive
in the armature would
be so great that the
field above would get
very little current hence
the power of the machine
would rapidly diminish
to prevent this I nat
only keep the fine wire
on the field across
& throw in a coarse wire
coil right in the same
circuit as the bobbin
or in other words make it
a dynamo for a while,
this keeps the field up

4

and when the load become
lighter etc the lever G
cuts the coarse wire out
of the main circuit

d d is the fine wire
regular field wire,

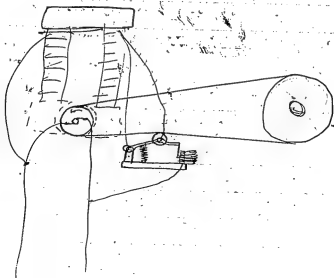
Did Siemens take current
off of more than one
wheel, I think not.
I remember I had another
US application where
this was shown - get this
& take what is good out
of it for the new English.

I propose to put a ~~pinion~~ gear
on the shaft where X is
meshing into a large gear
on the main driver -
I wonder if we could not get

5

a Combination claim of Belts,
friction clutch or equivalent
disconnecting mechanism
and gears,

Have we in any our cases
spoken of nickel plated
ends of rails, nickel plated
fish plates —
also Japanned rails —



Regulator = an arm carrying a wheel runs against the driving side of the belt + is held up against the belt by a powerful spring as load increases the arm is thrown downward compressing the spring + cutting out resistance thus regulating the EMF.

Monday
May 16, 1887

Section of a

2d Gear

for Clock

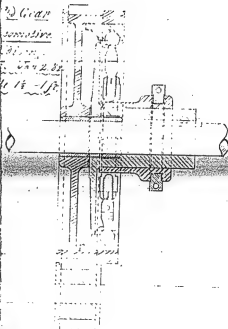
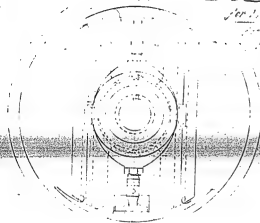
movement

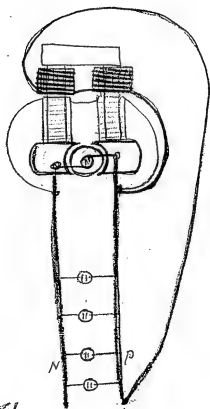
for 7 1/2

in 4 1/2

in 1 1/2

S





Nitrous
S. S. Webb

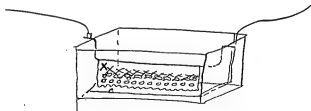
4

8,

Jan 17 1882

Gal

Patent,



Dyer =
New patent,

I take Cloth with various figures; Lace; Baskets of wickerwork or any article of manufacture made of Carbonizable material, Carbonize the same under steam pressure or both to prevent distortion, & make them into articles of Carbon still preserving their form; I then connect them to the poles of a battery or other source of Elec. in an Electrolytic Bath & deposit Copper, Gold or other metals over their entire surface of the required thickness, They are then taken from the Bath & straightened if distorted

and the same is a new article of manufacture
by a new process useful for ornamental
or other purposes.

Claim. A new article of manufacture
Electroplated Carbonized good,
2nd
Process ~~of~~

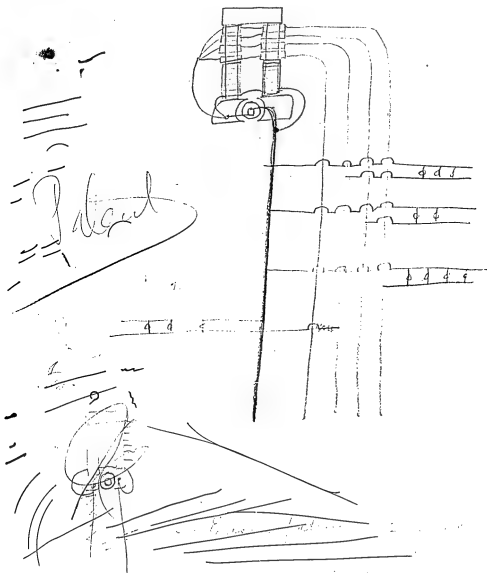
3rd Carbonizing ~~wood~~ or plated goods or ~~a~~
articles from manufacture from Carbonizable
materials & Electroplating the same after
Carbonization

Etc

Etc T. C. Edlin

W. W. Wheeler
N.Y. Oct. 24th 1882

Recd Jan 18th 1882
S D Mott



Oct. 28, 1882

W. W. W. W.

Hollow carbon filament

I make these by wrapping
a wire of zinc or other metal with
tissue paper or coating it with
sulph or Cellulose in any form
after pressing the consolidated
filament I withdraw the wire, or eat it
away by acid. Especially latter
process if the cellulose is to
be galvanized by hydrofluoric
acid. These hollow filaments
are bent in shape & carburized
in the regular manner.

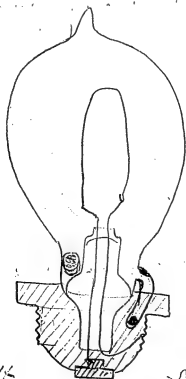
These filaments may be square oval or any
shape.

Claim a hollow filament of
Carburizable material

2. a Hollow filament of Carbon -

Mention that wires formed of hard
pitch, Celluloid, Resins can be coated
with Cellulose & treated & afterwards the
Resins can be dissolved out by
Solvents

! — January 1882 —



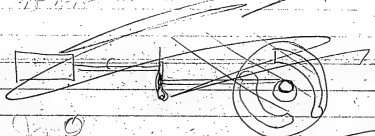
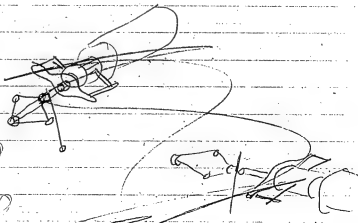
Wittman

O. A. Holt

May 21 1882



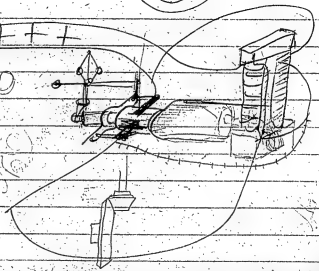
13 12
11 10
9 8 7 6 5 4 3 2 1

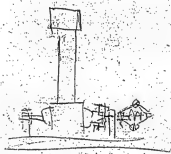


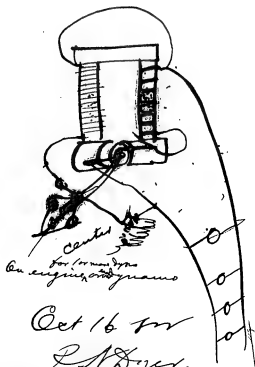
13 12
11 10
9 8 7 6 5 4 3 2 1

++++

Oct 20 82
R. N. Dyer



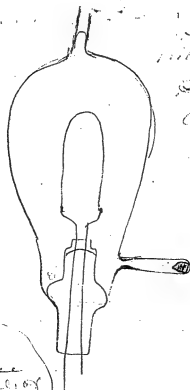




Oct 16 1897

L. A. Dyer.

Coarse
founding on one leg,
or over fine winding
of both legs.



Letter
J. L. L. L.
July 21st 1862

Another case
with crystal & of
naphthalene.

See if we have any
application for this in
US also England -

Patent on guarded or insulated
clamps or terminals =



The Metallic portion of the leading
in wire & the clamp and ~~near~~
all of the ~~band~~ broadened
end of the Carbon filament
is covered with several
coats of japanned varnish
well baked ~~so that it is~~
~~ready for use~~. This
protection ~~for~~ restrains it

considerable ^(P) extent
the Electrical Carrying
from the Carbon Loop
by diminishing the area
of Contact ~~between~~ of the
Electrode with the
residual air thus
increasing the
resistance of the
discharging space,

Claim. Insulating the
metallic
terminals within the
globe of an incandescent
Electric Lamp -

Insulating the terminals
of the filament of Carbon

within the vacuum chamber

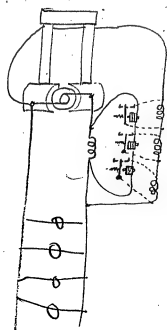
~~the use of japan varnish
or other varishes having
a drying oil as a base
is preferred.~~

Mention Collodion may
be used rather compound
such as glycer glue
which can be applied in
a plastic state,

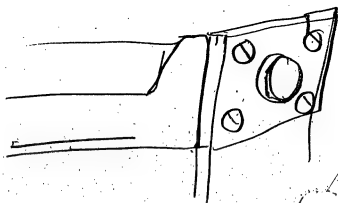
New York

Oct. 13, 82

W. W. Seely.

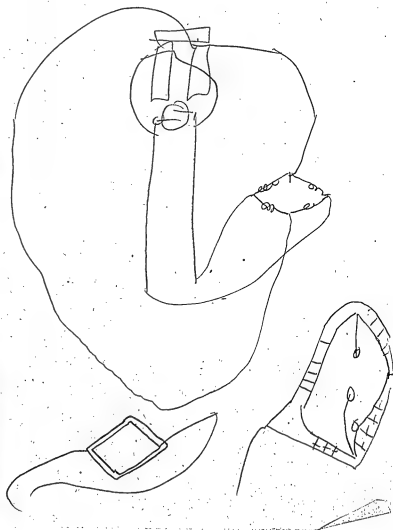


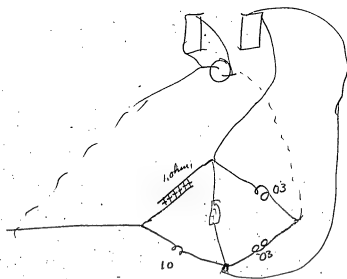
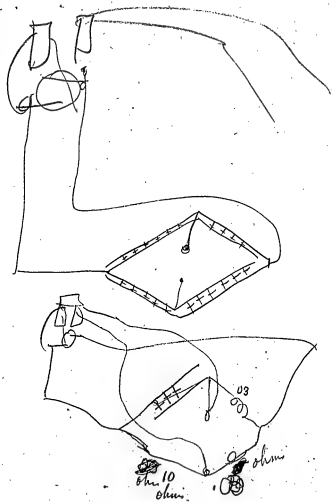
D. 11.4
Jany 21 1852

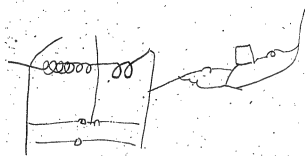
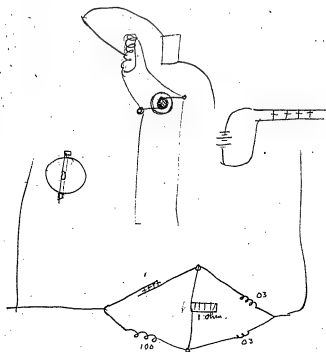
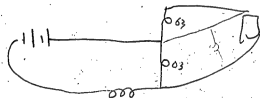
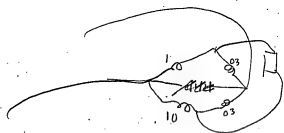


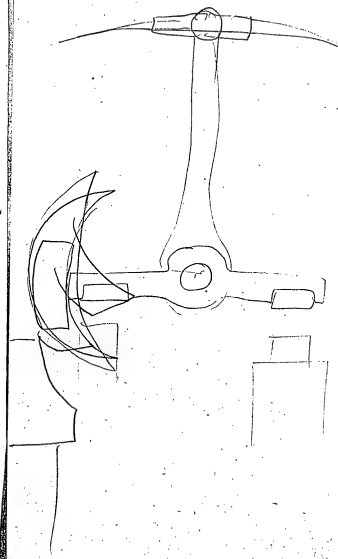
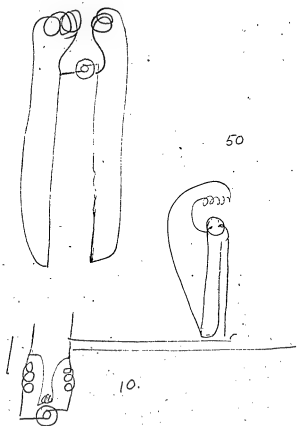
These sheets left
by Mr Edison with
me, this 11th Inst of
October 1882

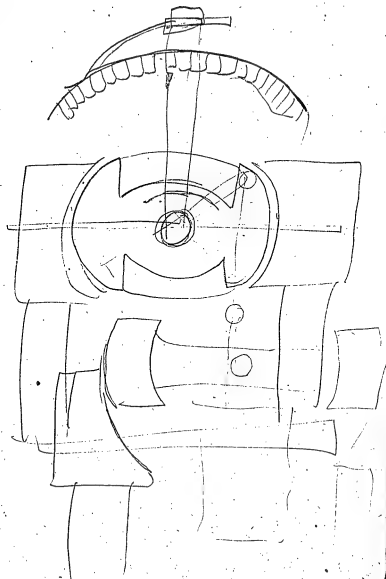
Rich^d St. Dyer











250 ft. loop per drum
500 feet per drum
272 turns per drum

$$\begin{array}{r} 18 \\ 36 \\ 108 \\ 41 \end{array} \left| \begin{array}{r} 20000 \\ 20000 \\ 20000 \\ 20000 \end{array} \right| \begin{array}{r} 500 \\ 500 \\ 500 \\ 500 \end{array}$$

$$\begin{array}{r} 548 \\ 642 \\ 1296 \\ 1296 \\ 14259 \end{array} \left| \begin{array}{r} 20000 \\ 20000 \\ 20000 \\ 20000 \\ 20000 \end{array} \right| \begin{array}{r} 500 \\ 500 \\ 500 \\ 500 \\ 500 \end{array}$$

$$\begin{array}{r} 12 \\ 12 \\ 12 \\ 12 \\ 12 \end{array} \left| \begin{array}{r} 83 \\ 83 \\ 83 \\ 83 \\ 83 \end{array} \right| \begin{array}{r} 31 \\ 31 \\ 31 \\ 31 \\ 31 \end{array}$$

$$\begin{array}{r} 36 \\ 180 \\ 360 \\ 360 \\ 360 \\ 15840 \end{array}$$

$$\begin{array}{r} 56 \\ 440 \\ 440 \\ 448 \end{array} \left| 18 \right.$$

$$\begin{array}{r} 9 \\ 22 \\ 198 \end{array} \left| \begin{array}{r} 24 \\ 16 \end{array} \right| \begin{array}{r} 16 \text{ feet} \end{array}$$

$$\begin{array}{r} 36 \\ 18 \\ 36 \\ 648 \\ 16 \end{array} \left| \begin{array}{r} 500 \\ 500 \\ 500 \\ 500 \\ 500 \end{array} \right| \begin{array}{r} 272 \end{array}$$

$$\begin{array}{r} 500 \\ 20000 \\ 10368 \end{array} \left| \begin{array}{r} 272 \end{array} \right| \begin{array}{r} 11000 \\ 49200 \end{array}$$

$$\begin{array}{r} 40 \\ 440000 \\ 110000 \\ 110000 \\ 110000 \end{array} \left| \begin{array}{r} 272 \end{array} \right| \begin{array}{r} 11000 \end{array}$$

$$\begin{array}{r} 12 \\ 15840 \\ 360 \end{array} \left| \begin{array}{r} 1320 \end{array} \right| \begin{array}{r} 1320 \end{array}$$

$$\begin{array}{r} 48 \\ 2 \\ \hline 96 \\ 7 \\ \hline 672 \end{array}$$

$$\begin{array}{r} 672 \\ 4 \\ \hline 364 \end{array}$$

728

$$\begin{array}{r} 576 \\ 364 \\ \hline 212 \end{array}$$

$$\begin{array}{r} 576 \\ 3 \\ \hline 1152 \end{array}$$



$$\begin{array}{r} 96 \\ 6 \\ \hline 576 \end{array}$$

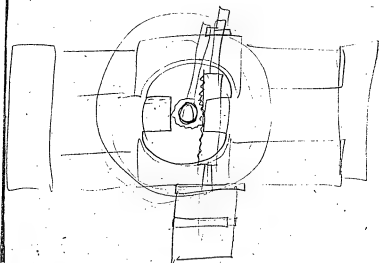
7

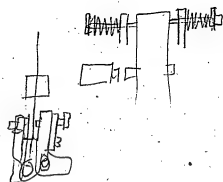
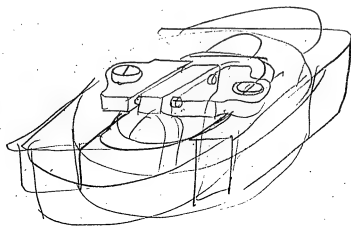
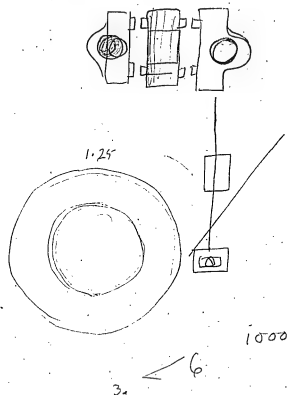
14

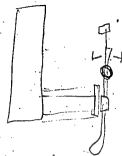
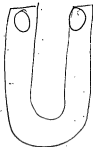
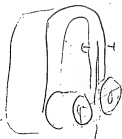
$$\begin{array}{r} 3 \overline{) 364} \\ \underline{121} \end{array}$$



$$\begin{array}{r} 26 \\ 2 \\ \hline 52 \\ 7 \\ \hline 364 \end{array}$$







20000 ft

$$\frac{.44}{6}$$

$$\begin{array}{r} 220 \\ 220 \\ \hline 4400 \\ 440 \\ \hline 4840 \end{array}$$

2

$$44 \overline{) 220} \left| \begin{array}{l} 5 \\ 6 \end{array} \right.$$

$$\begin{array}{r} 230 \\ 230 \\ \hline 6900 \\ 460 \\ \hline 52900 \end{array}$$

$$\begin{array}{r} 250 \\ 250 \\ \hline 12500 \\ 440 \\ \hline 5440 \end{array}$$

$$44 \overline{) 11000} \left(\begin{array}{l} 250 \\ 50 \end{array} \right.$$

$$40 \overline{) 250} \left(\begin{array}{l} 6 \\ 250 \end{array} \right.$$

$$\begin{array}{r} 44 \\ 4 \\ \hline 396 \end{array}$$

$$\begin{array}{r} 440 \\ 625 \\ 220 \\ 440 \\ \hline 240 \end{array}$$

$$\begin{array}{r} 88 \\ 220 \\ \hline 12500 \end{array}$$

$$\begin{array}{r} 440 \\ 529 \\ \hline 2160 \\ 216 \\ \hline 252700 \end{array}$$

$$\begin{array}{r} 11000 \\ 440000 \end{array}$$

$$\begin{array}{r} 44 \\ 4 \\ \hline 176 \end{array}$$

100

176

$$50 \overline{) 440000} \left(\begin{array}{l} 880 \\ 400 \\ 400 \end{array} \right.$$

$$50 \overline{) 88000} \left(\begin{array}{l} 176 \\ 500 \\ 500 \\ \hline 3300 \end{array} \right.$$

$$\begin{array}{r}
 235 \\
 235 \\
 \hline
 1175 \\
 705 \\
 \hline
 470 \\
 55225 \\
 \hline
 240 \\
 240 \\
 \hline
 9600
 \end{array}$$

$$\begin{array}{r}
 552 \\
 440 \\
 \hline
 22080 \\
 2208 \\
 \hline
 242880
 \end{array}$$

$24\frac{37}{100}$ Vabers per
 20,000 feet

$2\frac{1}{2}$ of ohm.
 330 feet.

$$4 \overline{) 1320} \begin{array}{l} 330. \end{array}$$

60.

660

4x1010

170 feet per ohm

$$\begin{array}{r}
 36 \\
 80 \\
 \hline
 720 \\
 22 \\
 \hline
 1440 \\
 1440 \\
 \hline
 15840 \\
 12 \overline{) 15840} \begin{array}{l} 1320 \end{array} \\
 12 \\
 \hline
 36 \\
 36 \\
 \hline
 24 \\
 24 \\
 \hline
 0
 \end{array}$$

51
 25
 12
 6

0.50

$4 \overline{) 1700}$
 425 feet per ohm

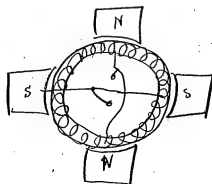
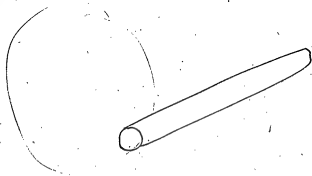
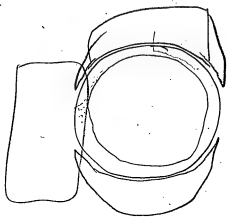
30-660
 15-1320
 7-2640
 3.75-6280
 1.35

$\frac{1}{54}$

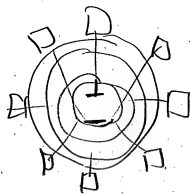
$$330 \overline{) 1700} \begin{array}{l} 5.1 \end{array}$$

50
 25
 12

20
 10
 5



38_r



26295 at 250 42 and
~~2025~~ 330 26 "

775

15

2 100
 2 50
 4 25
 8 12

12 / 600 / 50

50. 100. 12.50
 12 50 60
 030 25
 7 10

237. Vibers on 20000 feet.

1 Viber with 1 Lamp on

2 1/2 chm 330 feet.

231578

1.90 / 446.0000 (231578
 380
 60
 570
 300
 190
 1500 60 Vibers.
 1950
 1330
 330
 30 660
 15 1320
 7.80 2640
 3.75 5280
 1.87 10560
 .93 21120

25 / 1660 / 66
 1500
 160
 150

166 3 / 250 / 40
 838
 10

16
 60 / 100 / 166
 60
 400
 360
 400

21 / 166 / 78
 1480

1660
 14
 2
 8
 2.00
 1.90.00

166

14.

1.80

$$\begin{array}{r} 1200 \overline{) 1400} 1.16 \\ \underline{1200} \\ 2000 \\ \underline{1200} \\ 8000 \end{array}$$

$$\begin{array}{r} 166 \overline{) 11.600} .8 \\ \underline{14} \\ 26 \\ \underline{14} \\ 120 \\ \underline{112} \end{array}$$

p80

$$\frac{80}{1000}.$$

$$\begin{array}{r} 84 \overline{) 100} 11 \overline{) 100} 9 \text{ Vatts fall.} \\ \underline{80} \\ 20 \overline{) 100} 5 \end{array}$$

$$68 \overline{) 115} 1.7$$

$$\begin{array}{r} 14 \overline{) 190} 13.5 \\ \underline{140} \\ 50 \\ \underline{42} \\ 80 \\ \underline{70} \end{array}$$

$$\begin{array}{r} 13 \overline{) 100} 7.7 \\ \underline{91} \\ 90 \end{array}$$

$$\begin{array}{r} 75 \overline{) 100} 1.3 \\ \underline{75} \\ 250 \\ \underline{225} \end{array}$$

$$\begin{array}{r} 130 \quad 1.30 \\ 300 \quad 1.6 \\ 1 \quad .8 \end{array}$$

950

3

2850

$$\begin{array}{r} 570 \\ \underline{2850} \end{array}$$

$$12 \overline{) 3420000} (2850.$$

42

3

126

250.

$$\begin{array}{r} 3 \overline{) 5200} 12 \overline{) 31500} (2625- \\ \underline{1740} \\ 3480 \end{array}$$

252

31500

24

72

30

24

60

$$\begin{array}{r} 47 \\ 23 \\ \hline 161 \\ 210 \\ \hline 37050 \\ 282 \\ \hline 35250 \end{array}$$

$$\begin{array}{r} 12 \overline{) 33750} \quad 2812 \\ \underline{24} \\ 96 \\ \underline{15} \\ 120 \\ \underline{3} \end{array}$$

$$\begin{array}{r} 12 \overline{) 35250} \quad 2937 \\ \underline{24} \\ 112 \\ \underline{108} \\ 45 \\ \underline{36} \\ 90 \end{array}$$

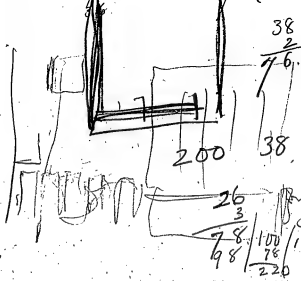
$\frac{44}{44}$ } feed
 20 hrs ends
 24 Corn
 48 2 bannings
 24 Coughing
 36 Eng brogs
 22 Crank
 18 goor
 280

$$\begin{array}{r} 3 \overline{) 50} \\ 16-2 \end{array}$$

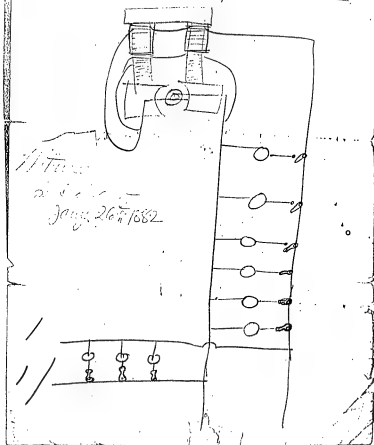
$$\begin{array}{r} 4 \overline{) 38} \\ 9-2 \end{array}$$

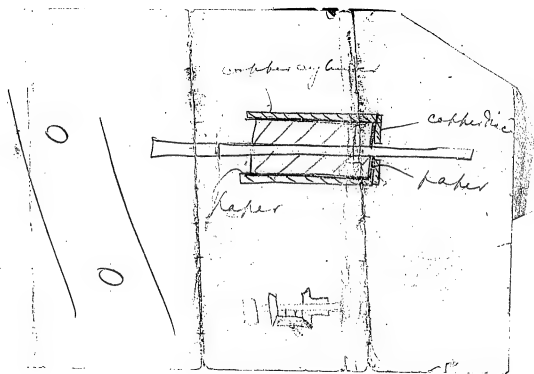
$$12 \overline{) 280} \quad 23$$

$$\begin{array}{r} 3 \overline{) 50} \\ 16 \end{array}$$



Look up Bensch
if he doesn't
cover this position





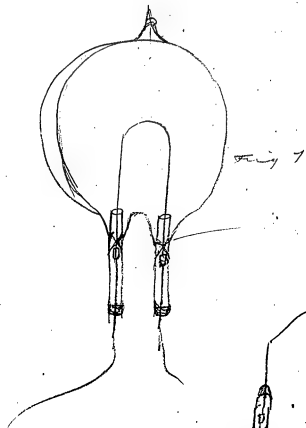
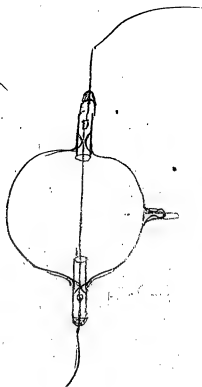
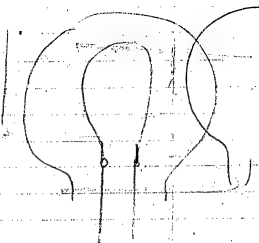
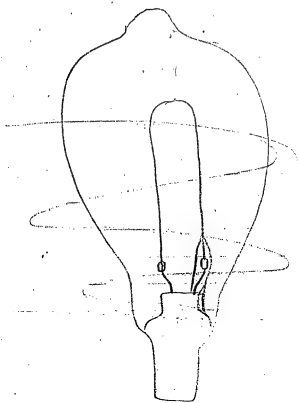


Fig 2



Jan 26 52
 Witness
 Rich^d H. Dyer



THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Frederic H. Upton,
Edward H. Johnson.

*Take out this
patent U.S.*

Menlo Park, N. J., 188

Object Process of ~~the~~ *the* manufacturing Electric Lamps

Invention consists in
~~first~~ *first* Exhausting the air from
the containing chamber by
means of charcoal process
of completing an incandescent
Electric Lamp
first by heating the chamber
externally combining therewith
a chamber containing an
absorbant of gases such as
Charcoal, heating the charcoal
to drive out all the gases
possible

THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Frederic H. Upton,
Edward H. Johnson.

Menlo Park, N. J., 188

②
becomes the charcoal chamber
is connected to the lamp -
Connecting the charcoal
chamber to the lamp
while both are hot,
the use of a spark gauge
to ascertain the state
of the vacuum.
When sufficiently high
the ~~sub~~ *sub* Lamp is connected
to the Electric Circuit
& gradually heated by
the current throwing out
air which is absorbed by
the charcoal, ~~where~~
the lamp ~~comes up~~ *comes up* is
~~brought up~~ brought up
beyond the point where it is

THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Freddie R. Upton,
Edward H. Johnson.

Menlo Park, N. J., 188

³
to 6z burned regularly, it
is allowed to burn for
some time, then is sealed
off at. X.

The tube C is then
affixed to another lamp and
the same process takes
place. The tube C
& tubing part d might be
dispensed with and the
mouth of the Charcoal
E extended so as to be
sealed on each time to a
lamp.

By this process Vacuum
pump can be dispensed with
although in some instances
a steady operated Vacuum pump

THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Freddie R. Upton,
Edward H. Johnson.

(4)

Menlo Park, N. J., 188

may be used with economy to
~~allow~~ partially Exhaust the
globe =

I am aware that Charcoal
has been used with a
mercury pump (See my
other patent). but the
operation of Electrical
Treatment of the incandescent
Conduct was done while the
Lamp was connected to the
pump - The main object
of this invention is to save
the expense of a ~~vac~~
vacuum pump
necessarily used on account
of the necessity of slowly
heating the incandescent conduct.

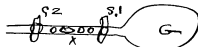
THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Frensis R. Upton,
Edward H. Johnson,



Menlo Park, N. J., 188

Dick - Want to get a
process patent on this,
Dewar of Scotland got
a Vacuum in a chamber
by two stopcocks thus



S S are stop Cocks X the
Charcoal, he heated the
Charcoal with S1 closed
this threw out the air he closed
S2 & opened S1 the charcoal
absorbed air from G. he then
closed S1 & opened S2 &
heated charcoal again

THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Frensis R. Upton,
Edward H. Johnson,

6

Menlo Park, N. J., 188

but ~~I don't think~~ he never
could get a high vacuum
this way as the space
containing the charcoal
in manipulating the cox
would always keep the
vacuum down a little,

Our device is different,
beside its with a lamp
& electrical heating of
the conductor is another
point etc.

~~But~~ you can mention
drying substances such
as phosphoric anhydride
may be used in connection
with the charcoal to
dry the charcoal to
any degree of dryness

THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batellelor,
Frederic R. Upton,
Edward H. Johnson.

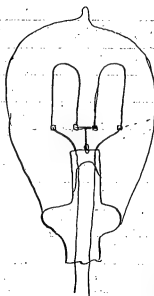
7 Menlo Park, N. J., _____ 188

Vapor in the Lamp.

T. A. Edison

July 27 1882

Fig 1



Patent 1

plated or aluminum covered

Fig 2

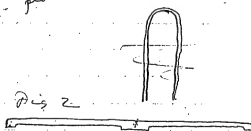
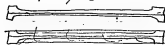


Fig 3



Patent Lamp consisting of two or more separate filaments of flexible Carbon cut from the same material and Carburized together so as to know same quality as to resistance & economy to permit the two or more filaments to be worked in series.

My Oct 9 1882
J. Newberry

Patent 3

Fig. 1

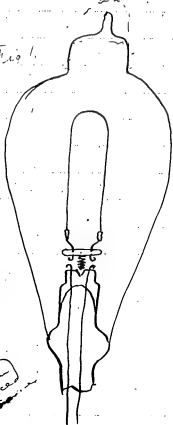


Fig. 2

more 2 or
more for
the front
the back when
in use for same

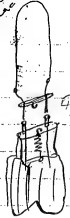


Fig. 3



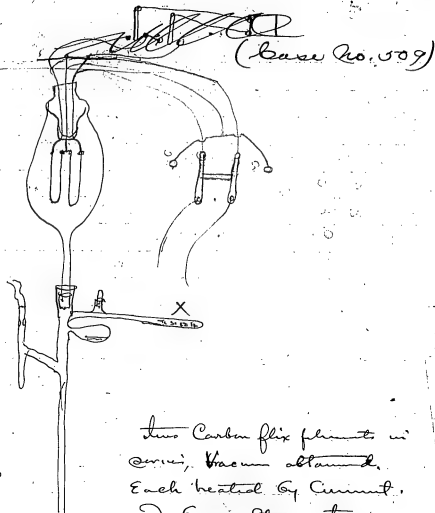
Fig. 4

Fig. 5



Fig. 6

New York Oct. 9, 80
W. W. W. W.



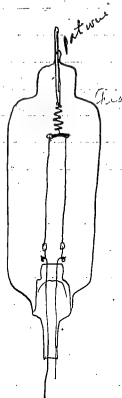
My Oct. 9 '12
 Whaley

Two Carbon filix filaments in
 series, Vacuum obtained.
 Each heated by current,
 and brought up to
 incandescence separately.

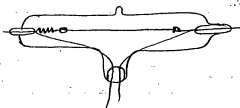
after the arc is worked out of each
 Carbon + vacuum obtained both
 Carbons are connected in series
 and brought up ^{to incandescence} so one shall
~~be at 16 or 18 or 20 or 25 or 30 or 40 or 50 or 60 or 70 or 80 or 90 or 100 or 110 or 120 or 130 or 140 or 150 or 160 or 170 or 180 or 190 or 200 or 210 or 220 or 230 or 240 or 250 or 260 or 270 or 280 or 290 or 300 or 310 or 320 or 330 or 340 or 350 or 360 or 370 or 380 or 390 or 400 or 410 or 420 or 430 or 440 or 450 or 460 or 470 or 480 or 490 or 500 or 510 or 520 or 530 or 540 or 550 or 560 or 570 or 580 or 590 or 600 or 610 or 620 or 630 or 640 or 650 or 660 or 670 or 680 or 690 or 700 or 710 or 720 or 730 or 740 or 750 or 760 or 770 or 780 or 790 or 800 or 810 or 820 or 830 or 840 or 850 or 860 or 870 or 880 or 890 or 900 or 910 or 920 or 930 or 940 or 950 or 960 or 970 or 980 or 990 or 1000 or 1010 or 1020 or 1030 or 1040 or 1050 or 1060 or 1070 or 1080 or 1090 or 1100 or 1110 or 1120 or 1130 or 1140 or 1150 or 1160 or 1170 or 1180 or 1190 or 1200 or 1210 or 1220 or 1230 or 1240 or 1250 or 1260 or 1270 or 1280 or 1290 or 1300 or 1310 or 1320 or 1330 or 1340 or 1350 or 1360 or 1370 or 1380 or 1390 or 1400 or 1410 or 1420 or 1430 or 1440 or 1450 or 1460 or 1470 or 1480 or 1490 or 1500 or 1510 or 1520 or 1530 or 1540 or 1550 or 1560 or 1570 or 1580 or 1590 or 1600 or 1610 or 1620 or 1630 or 1640 or 1650 or 1660 or 1670 or 1680 or 1690 or 1700 or 1710 or 1720 or 1730 or 1740 or 1750 or 1760 or 1770 or 1780 or 1790 or 1800 or 1810 or 1820 or 1830 or 1840 or 1850 or 1860 or 1870 or 1880 or 1890 or 1900 or 1910 or 1920 or 1930 or 1940 or 1950 or 1960 or 1970 or 1980 or 1990 or 2000 or 2010 or 2020 or 2030 or 2040 or 2050 or 2060 or 2070 or 2080 or 2090 or 2100 or 2110 or 2120 or 2130 or 2140 or 2150 or 2160 or 2170 or 2180 or 2190 or 2200 or 2210 or 2220 or 2230 or 2240 or 2250 or 2260 or 2270 or 2280 or 2290 or 2300 or 2310 or 2320 or 2330 or 2340 or 2350 or 2360 or 2370 or 2380 or 2390 or 2400 or 2410 or 2420 or 2430 or 2440 or 2450 or 2460 or 2470 or 2480 or 2490 or 2500 or 2510 or 2520 or 2530 or 2540 or 2550 or 2560 or 2570 or 2580 or 2590 or 2600 or 2610 or 2620 or 2630 or 2640 or 2650 or 2660 or 2670 or 2680 or 2690 or 2700 or 2710 or 2720 or 2730 or 2740 or 2750 or 2760 or 2770 or 2780 or 2790 or 2800 or 2810 or 2820 or 2830 or 2840 or 2850 or 2860 or 2870 or 2880 or 2890 or 2900 or 2910 or 2920 or 2930 or 2940 or 2950 or 2960 or 2970 or 2980 or 2990 or 3000 or 3010 or 3020 or 3030 or 3040 or 3050 or 3060 or 3070 or 3080 or 3090 or 3100 or 3110 or 3120 or 3130 or 3140 or 3150 or 3160 or 3170 or 3180 or 3190 or 3200 or 3210 or 3220 or 3230 or 3240 or 3250 or 3260 or 3270 or 3280 or 3290 or 3300 or 3310 or 3320 or 3330 or 3340 or 3350 or 3360 or 3370 or 3380 or 3390 or 3400 or 3410 or 3420 or 3430 or 3440 or 3450 or 3460 or 3470 or 3480 or 3490 or 3500 or 3510 or 3520 or 3530 or 3540 or 3550 or 3560 or 3570 or 3580 or 3590 or 3600 or 3610 or 3620 or 3630 or 3640 or 3650 or 3660 or 3670 or 3680 or 3690 or 3700 or 3710 or 3720 or 3730 or 3740 or 3750 or 3760 or 3770 or 3780 or 3790 or 3800 or 3810 or 3820 or 3830 or 3840 or 3850 or 3860 or 3870 or 3880 or 3890 or 3900 or 3910 or 3920 or 3930 or 3940 or 3950 or 3960 or 3970 or 3980 or 3990 or 4000 or 4010 or 4020 or 4030 or 4040 or 4050 or 4060 or 4070 or 4080 or 4090 or 4100 or 4110 or 4120 or 4130 or 4140 or 4150 or 4160 or 4170 or 4180 or 4190 or 4200 or 4210 or 4220 or 4230 or 4240 or 4250 or 4260 or 4270 or 4280 or 4290 or 4300 or 4310 or 4320 or 4330 or 4340 or 4350 or 4360 or 4370 or 4380 or 4390 or 4400 or 4410 or 4420 or 4430 or 4440 or 4450 or 4460 or 4470 or 4480 or 4490 or 4500 or 4510 or 4520 or 4530 or 4540 or 4550 or 4560 or 4570 or 4580 or 4590 or 4600 or 4610 or 4620 or 4630 or 4640 or 4650 or 4660 or 4670 or 4680 or 4690 or 4700 or 4710 or 4720 or 4730 or 4740 or 4750 or 4760 or 4770 or 4780 or 4790 or 4800 or 4810 or 4820 or 4830 or 4840 or 4850 or 4860 or 4870 or 4880 or 4890 or 4900 or 4910 or 4920 or 4930 or 4940 or 4950 or 4960 or 4970 or 4980 or 4990 or 5000 or 5010 or 5020 or 5030 or 5040 or 5050 or 5060 or 5070 or 5080 or 5090 or 5100 or 5110 or 5120 or 5130 or 5140 or 5150 or 5160 or 5170 or 5180 or 5190 or 5200 or 5210 or 5220 or 5230 or 5240 or 5250 or 5260 or 5270 or 5280 or 5290 or 5300 or 5310 or 5320 or 5330 or 5340 or 5350 or 5360 or 5370 or 5380 or 5390 or 5400 or 5410 or 5420 or 5430 or 5440 or 5450 or 5460 or 5470 or 5480 or 5490 or 5500 or 5510 or 5520 or 5530 or 5540 or 5550 or 5560 or 5570 or 5580 or 5590 or 5600 or 5610 or 5620 or 5630 or 5640 or 5650 or 5660 or 5670 or 5680 or 5690 or 5700 or 5710 or 5720 or 5730 or 5740 or 5750 or 5760 or 5770 or 5780 or 5790 or 5800 or 5810 or 5820 or 5830 or 5840 or 5850 or 5860 or 5870 or 5880 or 5890 or 5900 or 5910 or 5920 or 5930 or 5940 or 5950 or 5960 or 5970 or 5980 or 5990 or 6000 or 6010 or 6020 or 6030 or 6040 or 6050 or 6060 or 6070 or 6080 or 6090 or 6100 or 6110 or 6120 or 6130 or 6140 or 6150 or 6160 or 6170 or 6180 or 6190 or 6200 or 6210 or 6220 or 6230 or 6240 or 6250 or 6260 or 6270 or 6280 or 6290 or 6300 or 6310 or 6320 or 6330 or 6340 or 6350 or 6360 or 6370 or 6380 or 6390 or 6400 or 6410 or 6420 or 6430 or 6440 or 6450 or 6460 or 6470 or 6480 or 6490 or 6500 or 6510 or 6520 or 6530 or 6540 or 6550 or 6560 or 6570 or 6580 or 6590 or 6600 or 6610 or 6620 or 6630 or 6640 or 6650 or 6660 or 6670 or 6680 or 6690 or 6700 or 6710 or 6720 or 6730 or 6740 or 6750 or 6760 or 6770 or 6780 or 6790 or 6800 or 6810 or 6820 or 6830 or 6840 or 6850 or 6860 or 6870 or 6880 or 6890 or 6900 or 6910 or 6920 or 6930 or 6940 or 6950 or 6960 or 6970 or 6980 or 6990 or 7000 or 7010 or 7020 or 7030 or 7040 or 7050 or 7060 or 7070 or 7080 or 7090 or 7100 or 7110 or 7120 or 7130 or 7140 or 7150 or 7160 or 7170 or 7180 or 7190 or 7200 or 7210 or 7220 or 7230 or 7240 or 7250 or 7260 or 7270 or 7280 or 7290 or 7300 or 7310 or 7320 or 7330 or 7340 or 7350 or 7360 or 7370 or 7380 or 7390 or 7400 or 7410 or 7420 or 7430 or 7440 or 7450 or 7460 or 7470 or 7480 or 7490 or 7500 or 7510 or 7520 or 7530 or 7540 or 7550 or 7560 or 7570 or 7580 or 7590 or 7600 or 7610 or 7620 or 7630 or 7640 or 7650 or 7660 or 7670 or 7680 or 7690 or 7700 or 7710 or 7720 or 7730 or 7740 or 7750 or 7760 or 7770 or 7780 or 7790 or 7800 or 7810 or 7820 or 7830 or 7840 or 7850 or 7860 or 7870 or 7880 or 7890 or 7900 or 7910 or 7920 or 7930 or 7940 or 7950 or 7960 or 7970 or 7980 or 7990 or 8000 or 8010 or 8020 or 8030 or 8040 or 8050 or 8060 or 8070 or 8080 or 8090 or 8100 or 8110 or 8120 or 8130 or 8140 or 8150 or 8160 or 8170 or 8180 or 8190 or 8200 or 8210 or 8220 or 8230 or 8240 or 8250 or 8260 or 8270 or 8280 or 8290 or 8300 or 8310 or 8320 or 8330 or 8340 or 8350 or 8360 or 8370 or 8380 or 8390 or 8400 or 8410 or 8420 or 8430 or 8440 or 8450 or 8460 or 8470 or 8480 or 8490 or 8500 or 8510 or 8520 or 8530 or 8540 or 8550 or 8560 or 8570 or 8580 or 8590 or 8600 or 8610 or 8620 or 8630 or 8640 or 8650 or 8660 or 8670 or 8680 or 8690 or 8700 or 8710 or 8720 or 8730 or 8740 or 8750 or 8760 or 8770 or 8780 or 8790 or 8800 or 8810 or 8820 or 8830 or 8840 or 8850 or 8860 or 8870 or 8880 or 8890 or 8900 or 8910 or 8920 or 8930 or 8940 or 8950 or 8960 or 8970 or 8980 or 8990 or 9000 or 9010 or 9020 or 9030 or 9040 or 9050 or 9060 or 9070 or 9080 or 9090 or 9100 or 9110 or 9120 or 9130 or 9140 or 9150 or 9160 or 9170 or 9180 or 9190 or 9200 or 9210 or 9220 or 9230 or 9240 or 9250 or 9260 or 9270 or 9280 or 9290 or 9300 or 9310 or 9320 or 9330 or 9340 or 9350 or 9360 or 9370 or 9380 or 9390 or 9400 or 9410 or 9420 or 9430 or 9440 or 9450 or 9460 or 9470 or 9480 or 9490 or 9500 or 9510 or 9520 or 9530 or 9540 or 9550 or 9560 or 9570 or 9580 or 9590 or 9600 or 9610 or 9620 or 9630 or 9640 or 9650 or 9660 or 9670 or 9680 or 9690 or 9700 or 9710 or 9720 or 9730 or 9740 or 9750 or 9760 or 9770 or 9780 or 9790 or 9800 or 9810 or 9820 or 9830 or 9840 or 9850 or 9860 or 9870 or 9880 or 9890 or 9900 or 9910 or 9920 or 9930 or 9940 or 9950 or 9960 or 9970 or 9980 or 9990 or 10000~~
 slow to incandescence.

If one is brighter than the other.
 It may be reduced until its brilliancy
 is the same as the other, by
 disconnecting the two + and bringing

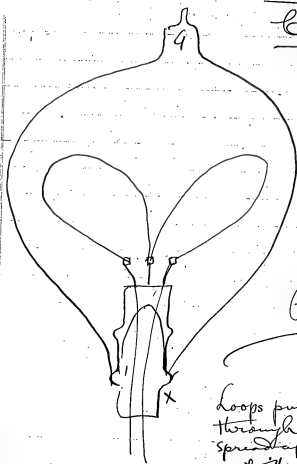
2
The brightest one upto incandescence and
heating X which contains
Cyanoide of Mercury. Cyanogen
is set free which being decomposed
deposits carbon upon the
filament and reduces its
resistance, this is done
momentarily then the two
Carbons are connected in
series by a switch &
watched to see if both are
equal in illuminating power.
if the one that was the brightest
is still too bright more cyanogen
is set free and deposited &
to go on until both
filaments are equal in
illuminating power
when connected in series
afterwards the two filaments are
brought up to a greater
incandescence than they are
afterward to be burned at
high vacuum obtained and
the Lamp is sealed off -



Patent



New York
Oct 9, 88
Whitely



Case 508

Patent

Loops put together & put
through X. Afterward
spread apart by a tool
put through. 9.

New York
Oct. 9 '88
W. W. Lee

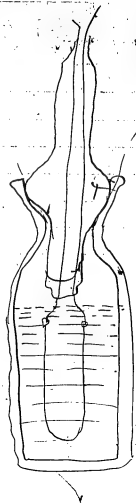
Patent =

~~treating~~ ^{gelatinizing} ~~par-chlorinating~~ vegetable
fibre by Hydrofluoric acid

The material may be thread paper
canks or other vegetable fibres
in the form of a flexible filament
ready for Carbazation or
sheets & sticks from which
the filament may be cut
or the process may be carried
to such an extent as to
completely gelatinize the
vegetable materials the gelatine
like mass being pressed free
as possible of acid & then
pressed in sheets by heavy
pressure from which the
filaments may be cut or
punched, no washing
of the material is required
as Hydrofluoric acid
gradually decomposes

My

New York Oct. 9, '88
W. B. Seely



Patent 2

gas set free
from oil
+ not filling

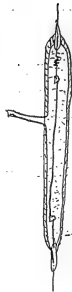
W. J.
Oct. 9, 1882
W. H. B. J.

Filament is brought up to dull red
in the hydrocarbon oil Bisulphide
Carbon or other liquid whose gas
is not decomposable at a low
red heat. This permits of ascertaining
promptly if a Carbon filament is
perfect. Before putting in lamp
the filament is not allowed to
reach a temperature sufficient
to decompose the slightest the
gas or deposit any thing upon the
Carbon. If a weak or rather bright or
duller spot is seen the filament is not used.

If it is desired to change the
resistance of the filament rendering
it of lower resistance, it is
taken out of soaked in sugar
or ~~not~~ Carborazole material not
salvageable in the menstruum used
and then immersed in the bath
and brought up to red heat by
the current the sugar or other
substance being decomposed
and Carborized within the
pores of the Carbon at the
same time it is seen that
the Carborization is even for
from even spot well be
seen & the filament is not
used -

N.Y. Dec. 9, '82
W. W. Wiley

Carbon does not
decom. from acids
at ordinary pressures
of a vacuum vapor



The coating may also be
obtained by soaking the
filament in an acetate of
the oxide & then immersing
the filament in a hydrocarbon
liquid & bring it up so
as to decompose & set
free the acetic acid
liberating lime upon
the carbon -

New York Oct 9, '88
W. W. W.

Patent

tube filled with
a filament of carbon
& then packed around it
very finely powdered
Zirconia, Magnesia,
Alumina or even metallic
oxide & then exhausting
boon & then exhausting
the glass by
extending to the
while exhausting the
when exhausted the
Carbon is gradually
but to incandescence &
then brought up to
such a temperature as to
melt the oxide in
proximity to the carbon which
coats the carbon with an
oxide - the filament then
is brought to a clear
& sealed for use as a
rod - the filament is then
brought up to incandescence
& then brought up to
the temperature at which
it glows with a
bright white light
& can be used
as a lamp

Case 511

Present,

Fig. 1

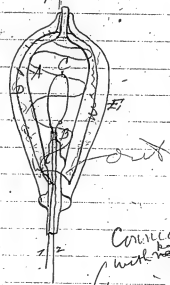
Fig. 2



New York
Oct. 9, 1933
W. W. Wiley

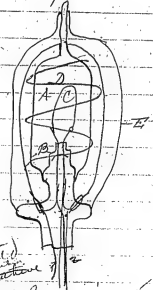
493

Fig 1



Run conductors in
spiral directly
to glass

Fig 2



Connected
with negative of
large carbon
wire in

vacuum - Charge
retained.

For Carbon positive - Earth
negative or zero - Hence glass
so I. Current makes glass
positive - charges it &
carrying is prevented

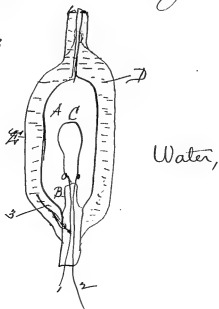
New York
Oct. 9, '82

W. W. Key

Pyr:

Shew this in double globe
application

Fig. 3

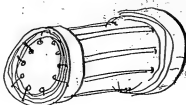


also Mention that the rapidity of
the discharge of the static
Current may be diminished by
Even filling the globe with,
a transparent heavy oil or
substance like Canada Balsam;
~~the oil~~ Olive oil the whole of
which would be charged
by the wire immersed in it.

Amo Feb. 1882

Dyer

Has the ring dynamo been
taken out in England

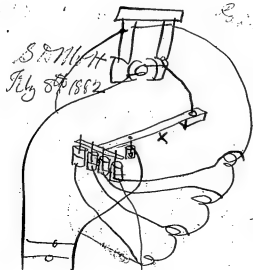


Engl 30
R. 335

has the Worm & worm wheel
~~automatic adjustment~~
~~way on one side with rollers~~
of the swinging brush
holder been taken out

Both are important -

You have given me no report as to
whether I would infringe Brush
or if there is any valuable difference
between Brush & this ~~to~~ ^{own}



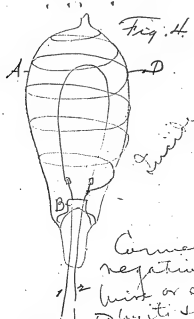
Pat. 222,511

Primary Cops

X ~~is~~ expansion strip
 heated by main current
 please advise =

Brush's pat. 222,511 does not
 describe the thermal device
 with spring biased cleavances
 to prevent a hammer claims
 by about 2000 words. I
 specific in said patent could

It is thought to have
potential as carbon.



Connect with
negative.

Wick or sheet
held by its support.

Grid of platinum or other
resistant material.

H_2 or chlorine acid

gas residual

Resists electrical

Carrying

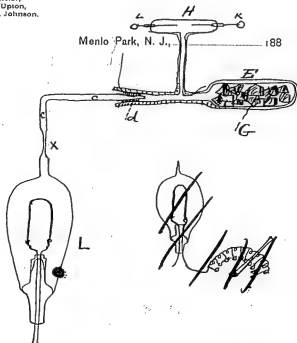
Exhausted by hand -

pump. The gas accumulates
below in a small chamber.

February 1882—

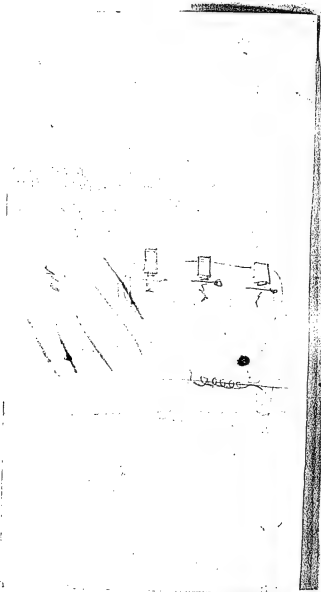
THE EDISON LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis R. Upton,
Edward H. Johnson,



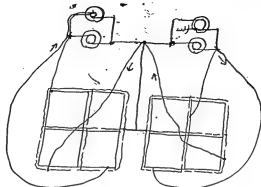
S. L. M. Y. K.
Feb 8th 1882

February 18

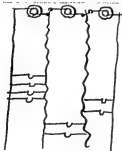
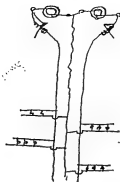


Q

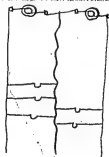
Patent Cotton R. M. Dyer.



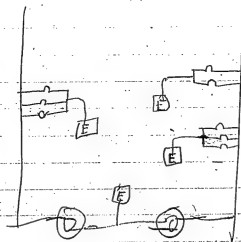
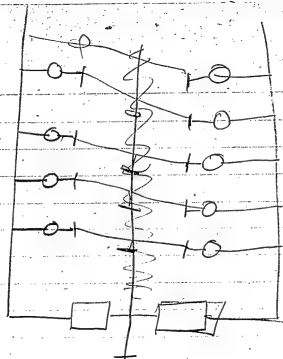
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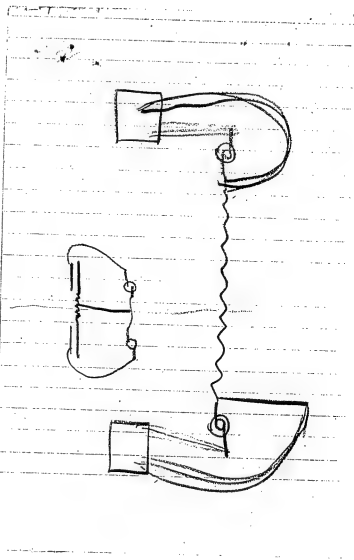
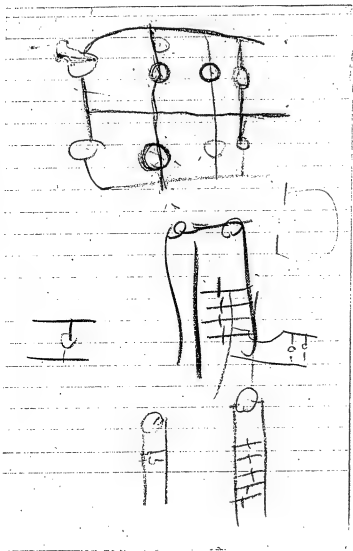


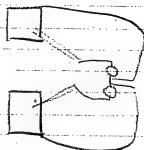
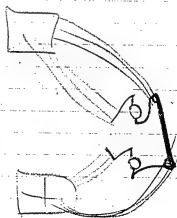
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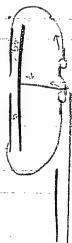
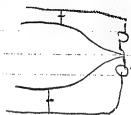
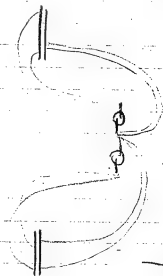
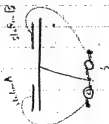
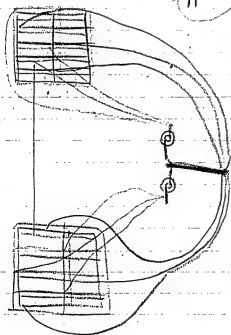


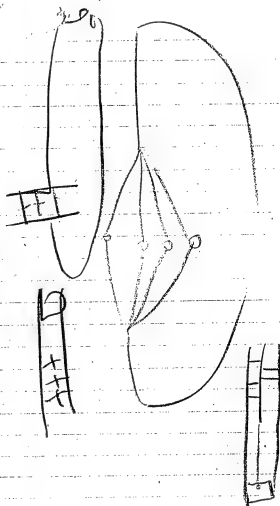
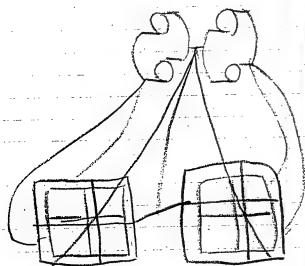
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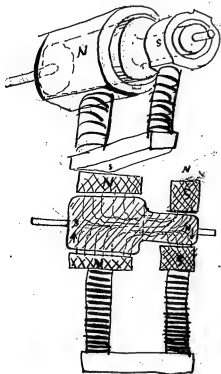


NO.

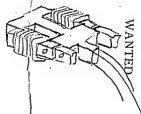
APPLICANT

LOCALITY

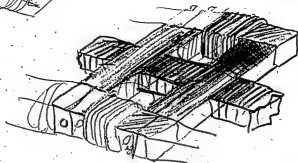
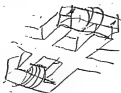
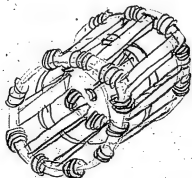
WANTED



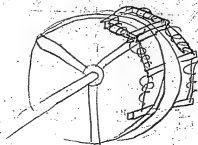
Oct 3 82
R.H. Dyer



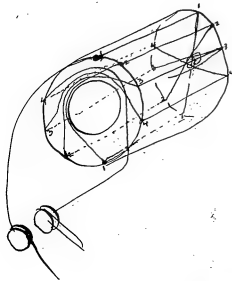
Oct 3 82
R.H. Dyer



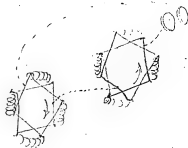
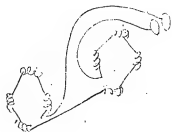
Q. 3. 8. 2
R. 1. 2. 3. 4.



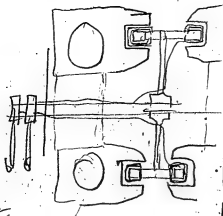
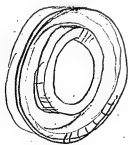
10/1/1909
J. K. G.



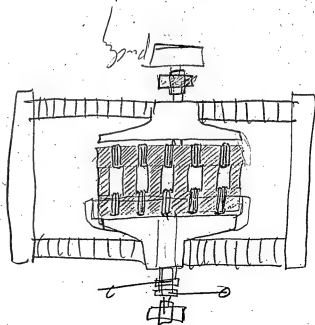
Oct 13 '82
R.A. Dyer



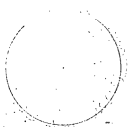
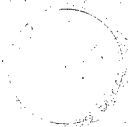
Oct 13 '82
R.A. Dyer



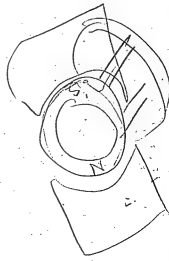
Oct 7 3.8m
R.H. Dyer



Oct 7 3.8m
R.H. Dyer



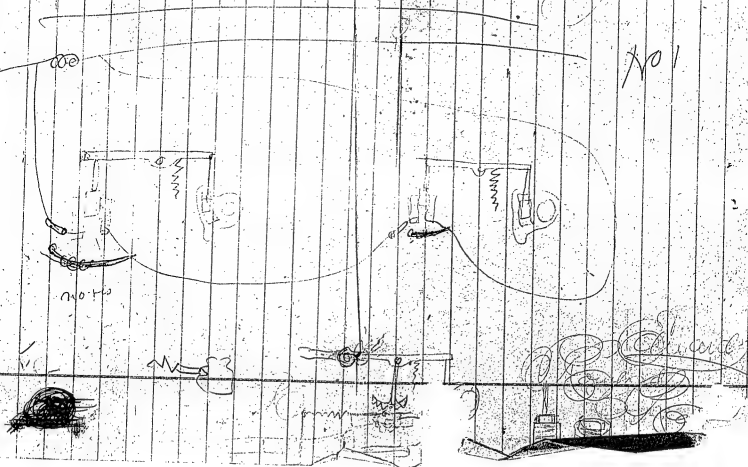
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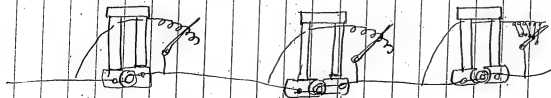
Handwritten scribbles and marks, possibly representing a signature or initials.

1882

No 1



Mar 1st 87

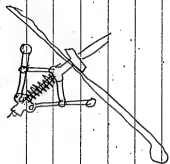
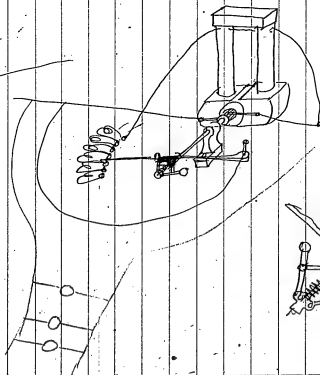
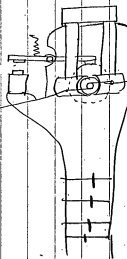


Patent several Dynamos worked
Either as generator or motors

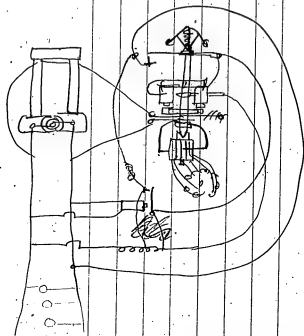
all in series Each having its
own field multiplied and across its
armature with an adjustable reverse
in the field so that Ethel or each could adjust
direction -

new 138m

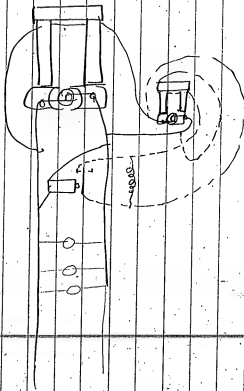
Details 2nd Patent Redney Eng



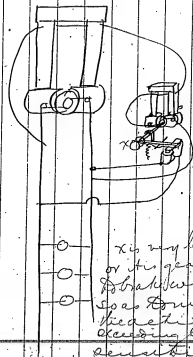
Mar 13 8m



Do

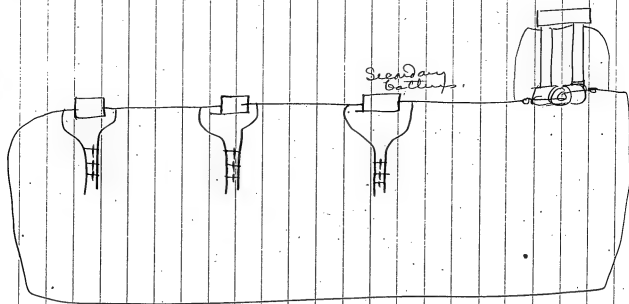


Reg field
Isolated,



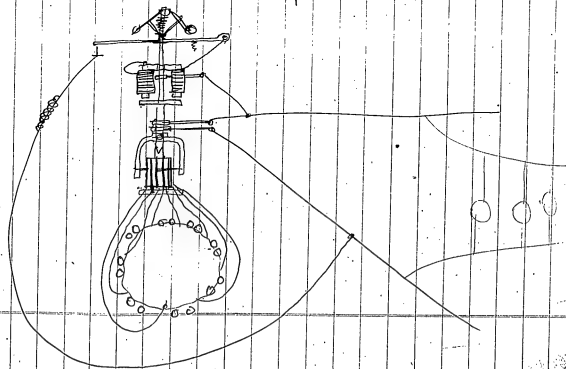
man 1382

2nd patrol Emf (Details)

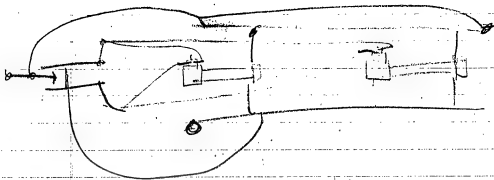


mar 13 82

Stouls 2nd Euf patent



Mar 29th 82



1
Insulation consists in effecting the
Economic decomposition of various
Substances electrolytically
by submitting such substances
to electrolysis when under
high temperature & pressure.

It has been found that many substances

Heat tends to diminish the amount
of Electric Energy required to
effect the decomposition, and as
this heat is obtained directly, ~~from~~
from the combustion of fuel
acting on the substance the
process requires but a small
amount of Electric Energy.
~~still gets the most out of it~~
and this amount is still
further diminished by the fact
that nearly all compounds
decompose the residue by heat
~~themselves~~. The more particular aspect
of this invention is to act on
substances which do not ~~conduct~~
at all at ordinary temperature
~~but~~ just conduct sufficiently at very high

2.

temperature to permit of decomposition
as many of these antelone
are liquid at ordinary
temperature the receptacle
for effecting the decomposition
must be such as to permit
of high pressure

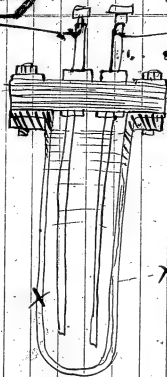
Plan

A cell for electrolytic
decomposition

The method

April 12, 1902.
Witness R. B. Dyer.

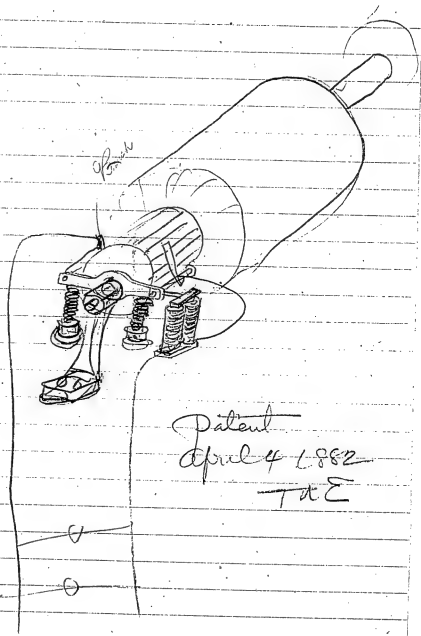
X may be lined
with fine clay
etc.



X iron/nickel cell.

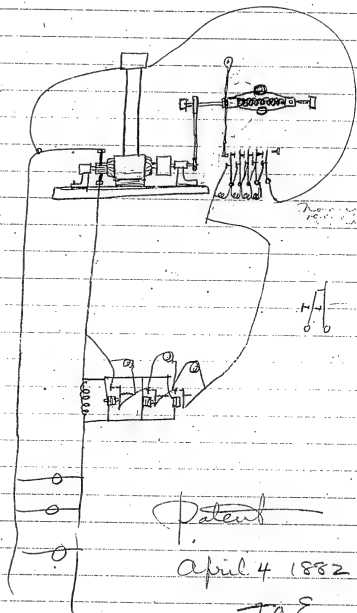
Carbon, or metallic electrodes.

Cell made to withstand
several hundred lbs pressure
to 200 inches



Patent

Patent
April 4 1882
TAE

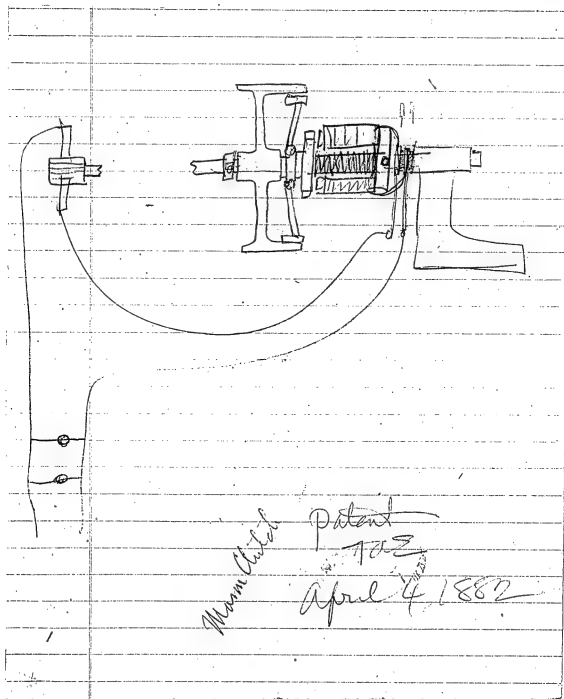


Patented April 4, 1882
TAE

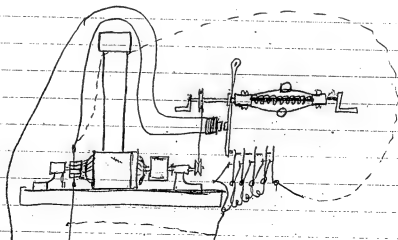
Patent

April 4 1882

TAE



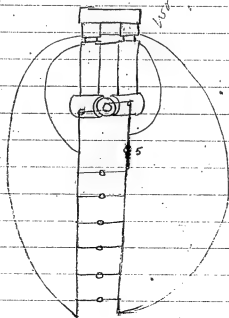
Make drawing with 3 sets of
resistance in



Patent

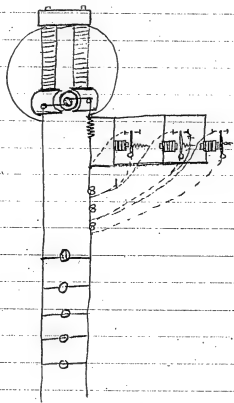
April 4 1882

Tae



off 4 184²
TAR

Drop utilized? If not sufficient
Drop resistance can be put in



1882

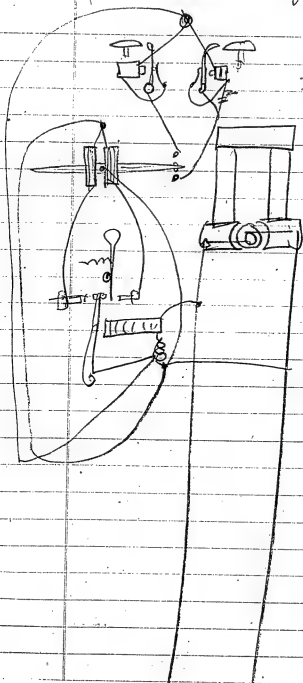
April 4 Patent

TaE

English No. 43

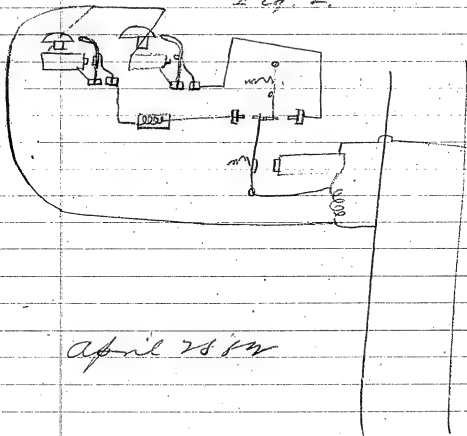
Fig. 4.

April 28 82.



English No. 43

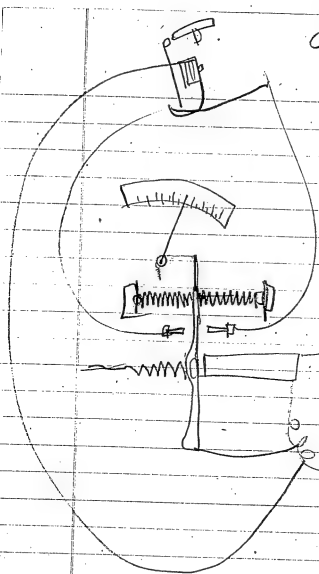
Fig. 2.



April 28 1912

English no. 43

Fig 3



April 28 82

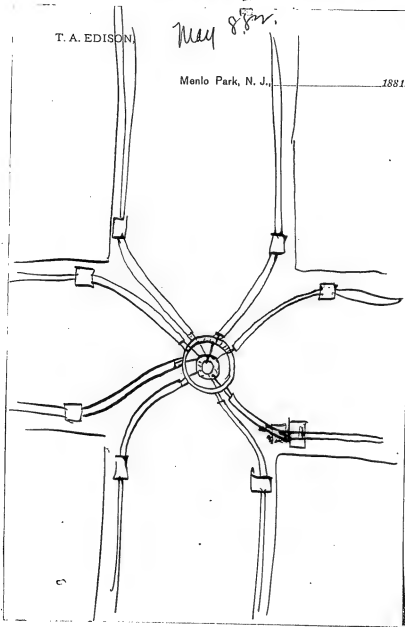
— May 1882 —

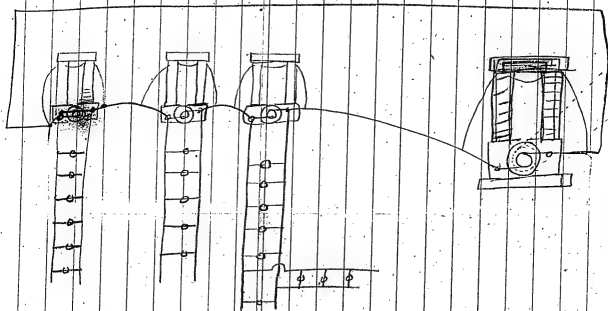
T. A. EDISON

May 8th

Menlo Park, N. J.

1881.





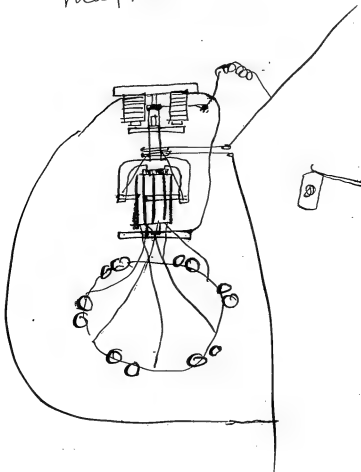
May 10th
1882

T. A. EDISON,

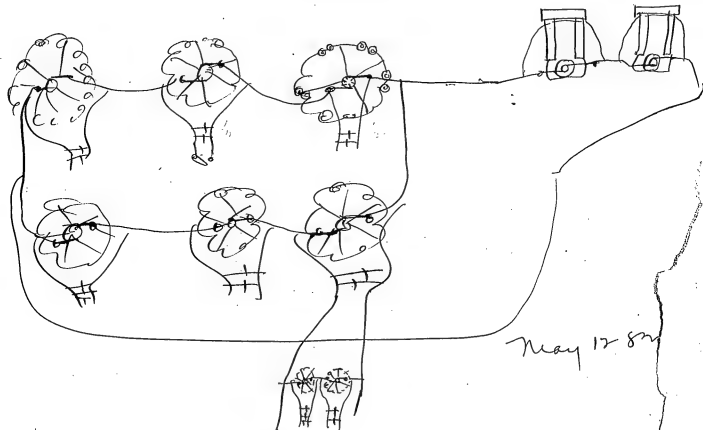
Menlo Park, N. J.,

1880.

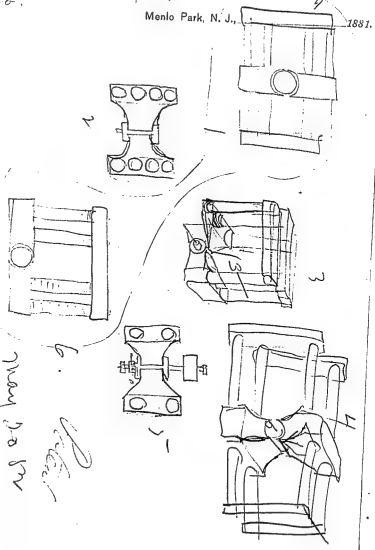
mag. 1880



(1) (2)

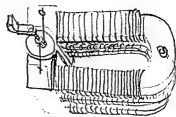


T. A. EDISON,
 Menlo Park, N. J., 1881.



used here
 Edison

oncentration of field
 in concentric. led. poles.



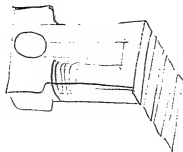
new paper

7

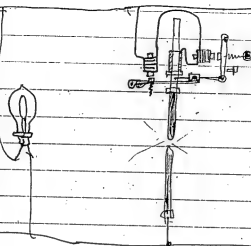
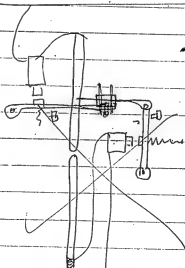
W. H. P.

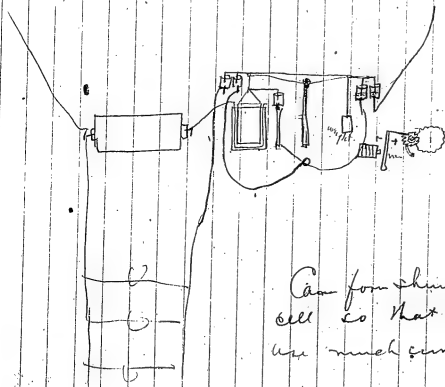
T. A. EDISON,

Menlo Park, N. J., _____



May 27 '82
Witness R. H. Dyer

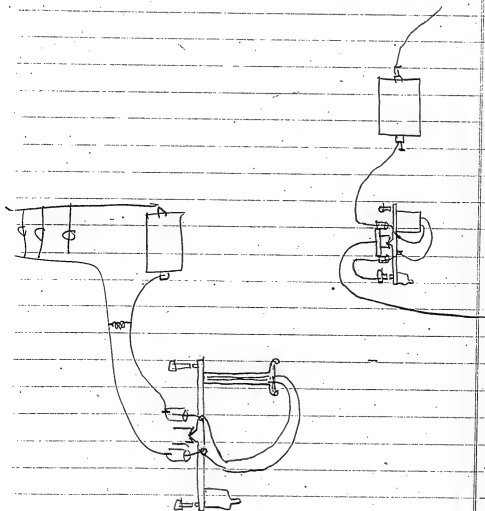




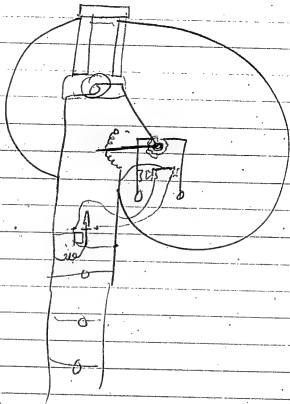
Can form shunt around
cell so that it is not
use much current.

May 29
1882
Tae

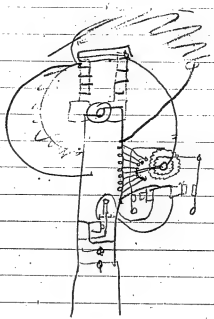
May 29 SW



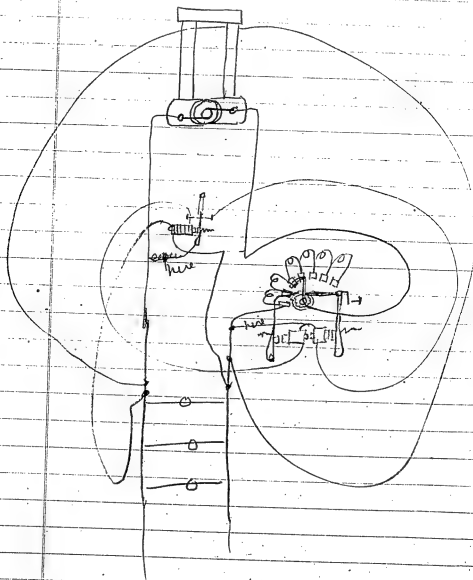
May 3, 50



Page 152



May 81 1882 TAE



flexible.
Clear filaments of Carbon
formed of Cellulose Carbon
obtained from Cellulose
or compounds of Cellulose
dissolved by proper Solvent,
~~then~~ + made into sheets
or membranes from which
the ~~loop~~ Carbon filament
may be punched or cut
before or after ~~Carbonization~~
or made into solid masses
subjected to heat &
pressure whereby it is
forced through dies
as a fine filament.

Pure
Cellulose may be dissolved in
~~cupric ammonium~~
Cuprammonium hydrate.

By means of heat and pressure the viscous proteinous mass may be formed into fine filaments which can be knitted.

June 1st 1912

Flow solution over glass.

allow dry ~~to~~ put membrane

between sheets of paper or

metal and punch out in

proper form & exchange under

atmospheric pressure -

also sheet celluloid may cut in

for other shapes & exchange

- June - 1882 -

Compounds of Cellulose.

such as ~~for~~ tri-nitrocellulose.
soluble in Ethylic acetate

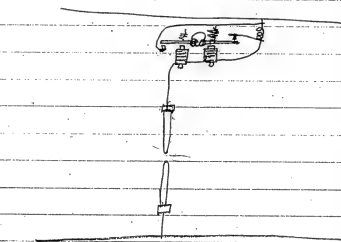
other Nitrates of Cellulose
are Soluble in Alcohol & Ether,
Carbonal & Camphor, Acetone,
Nitro Benzol,

Other Carbohydrates

To go into 437 or down of 373.

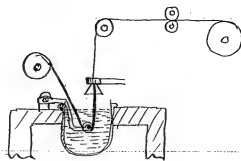
June 5-82

Safety device for a.c. lamps
used in multiple a.c.





June 5th 1882



June 3, '82

~~of~~ Asphaltum
dissolved in turpentine

~~or~~ Asphaltum mixed in
proper proportion ~~to~~
with a drying oil
such as Linseed to form

"Japan" in

Coat ^{thin} polished metallic
plates with layer of very
pure liquid ~~and~~
and bake in an oven for
several hours until the
coating is very hard,

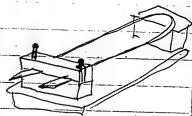
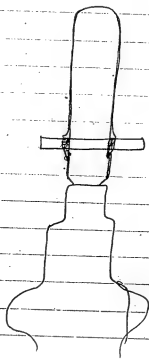
the plate is then put in Nitric
or other acid & ~~is then~~ dissolved
leaving ~~the~~ a very flexible
dense film from which film
of carbon may be obtained
by punching

~~if all high~~ The surface may
be worked down & made
smooth & ~~the~~ plates may be put
in places or much plates dissolved by hydrofluoric acid

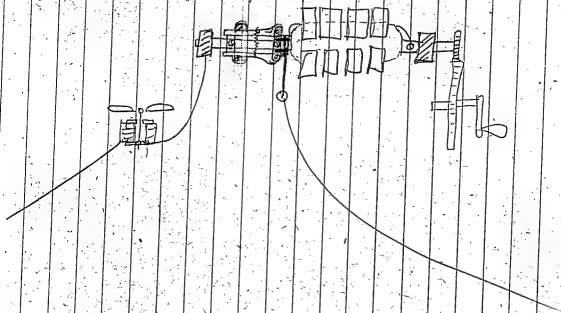
Discovered by an American chemist in 1828.

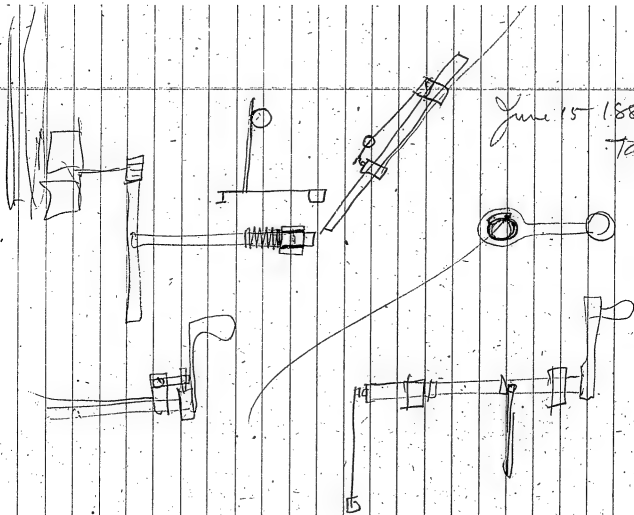
films or membranes of Oxidized
linseed oil mixed with asphalt
~~with asphalt or asphalt~~
~~alone~~

522

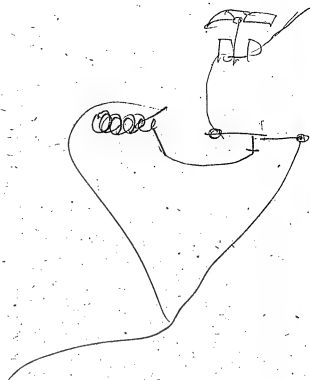
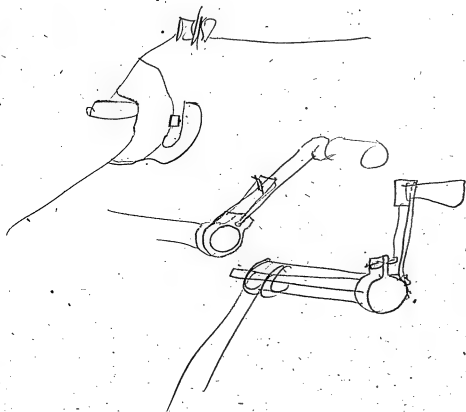


June 15th 1952



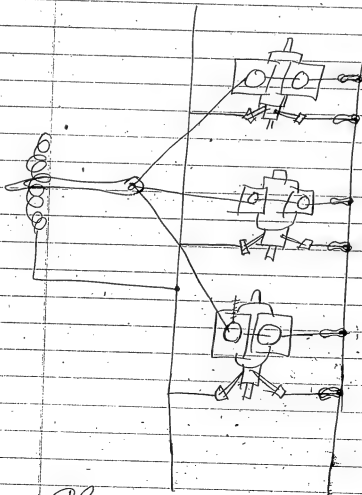


June 15 1882
TAE.



Central station case.
 (But in neutralization case, fuses or
 more machines with common automatic
 breakers with common apparatus.)
 Make patent in

method of disconnecting
 dynamo or magnets
 electric machines arranged
 in multiple arc, consisting
 in first breaking the
 circuit of the machine



June 19, 89

Witness
 R. H. Byrd

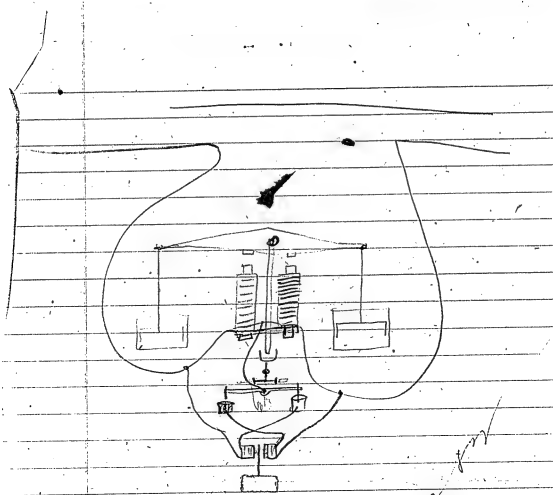
Claim same resistance
 for two or more multiple
 arc fields. ~~the same~~

Placing in lamp perma-
nently a compound for
a long time, a clear vapor
evolved. Phosphorus
and SO_2 , Chlorine of
Calcium, & any other
propagated. Phosphorus

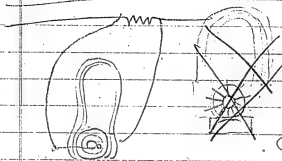
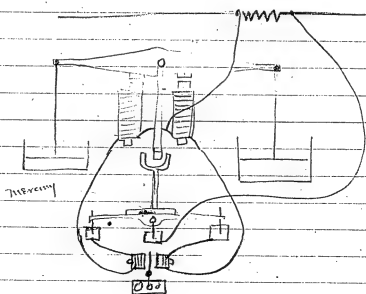
Placed in lamp or in tube,
or in tube left an hour
long time & then sealed
off. Pref. kept permanently

June 19 52





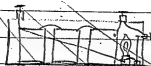
June 1st



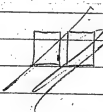
June 5/2

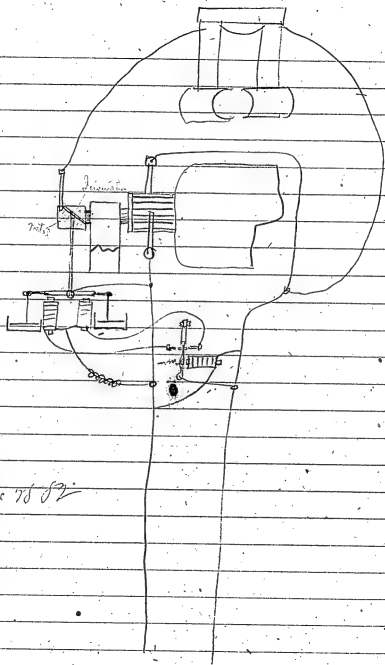


4.13



25 5/4





June 18 82

Minimum amount of water

flour ^{and sugar} ~~with~~ ^{into} the ~~cream~~ ^{cream}

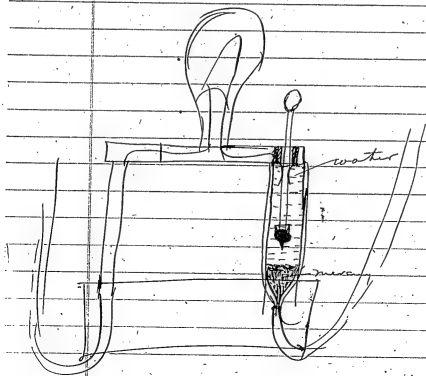
instructed gentlemen are friends
therefore which are to be used
in the future.

Also the draft is forced from a chamber through an orifice in the shape of a Y joint.

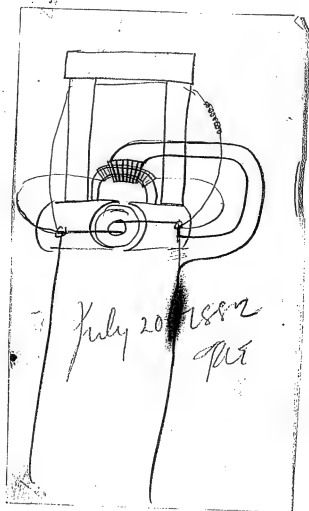
When dried under strain
or strain & pressure & then
~~beaten~~ in any desired
shape then Carbonyl
under strain & pressure

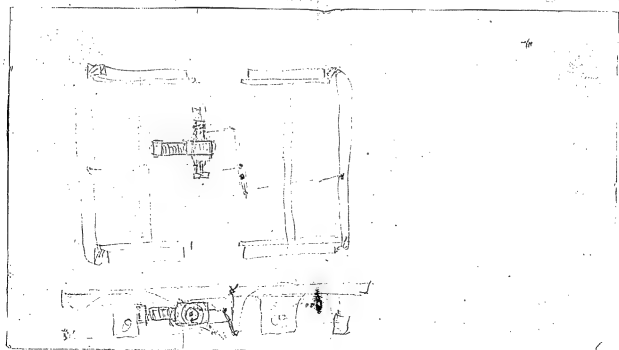
June 27th 82

More or less ^{or all} of the starch
may be forced out & the
glutin used. Describe
glutin broadly



Mining Lamp
with one movable connection
July 7 80
R. A. Dyer





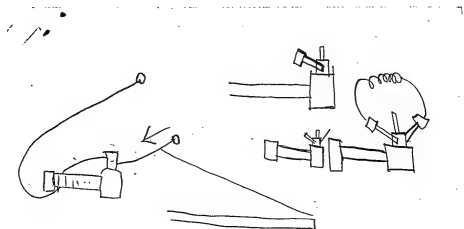
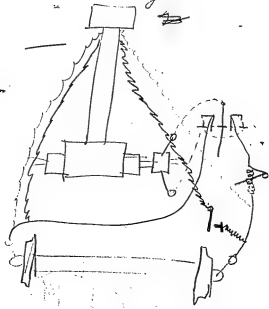
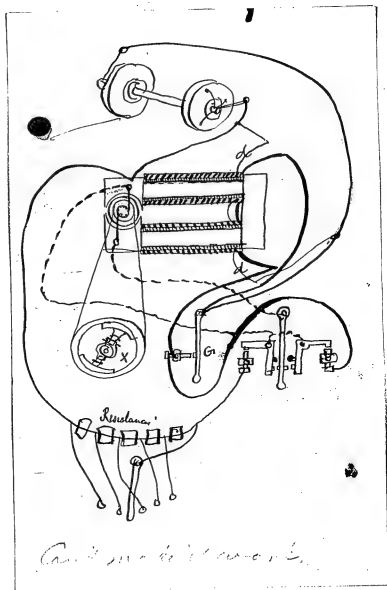
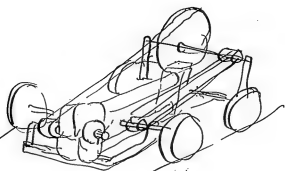


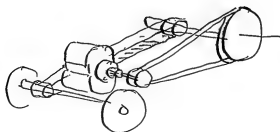
Fig 2





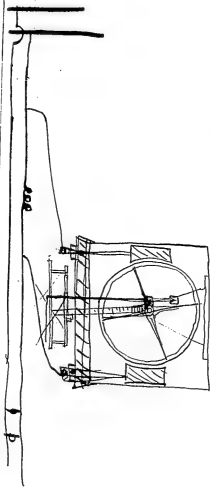


Matt make a drawing from the photograph
 of the Locomotive for a patent
 Inwell has a photograph show better clearly



— August 1882 —

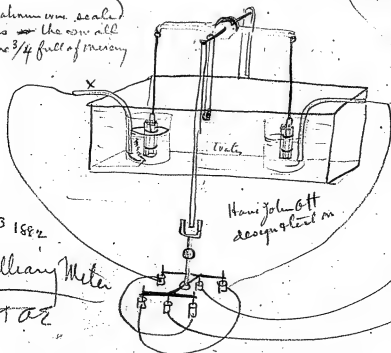
Aug 2 1882



THOMAS A. EDISON,
MENLO PARK, N. J.

188

X is platinum wire sealed
in glass the two small
jugs are $\frac{3}{4}$ full of mercury



Aug 13 1882

Capillary Meter
P.T.A.E.

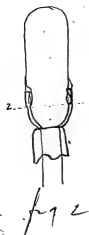
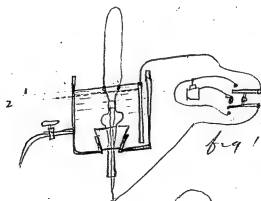
Over 181



bundle of
glass tubes

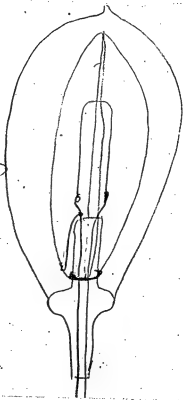
fig 2

large square trough
filled with water



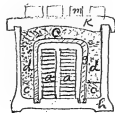
Aug. 10, 1911

Aug 18th
1882



object to include ~~air~~
 & Carbon, under a pressure
 Carbonized Cotton sensitive to
 oxidation absorbs Oxygen

Plumbago Coars are the regular
 Plumbago Cinders made with clay



Aug 18th
 1882

Mould for Carbonizing

a a Carbon forms holding the fibres.

c c c Carbonized Cotton

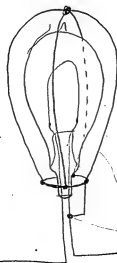
d d Plumbago tamped

g inside plumbago Coars

h outside plumbago

Coars K Plumbago top

m fine brick to weight Coars down



Nickel plated wire
connected with
the conductor

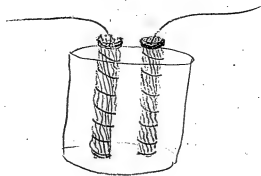
residual gas particles
attraction of particles

Aug 18th 1882

Oxide formed
is in interstices
so can't fall out.

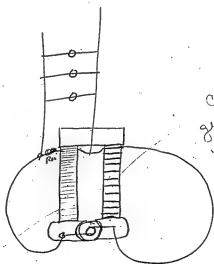


Large surface
exposed to
air



Aug 18 '82



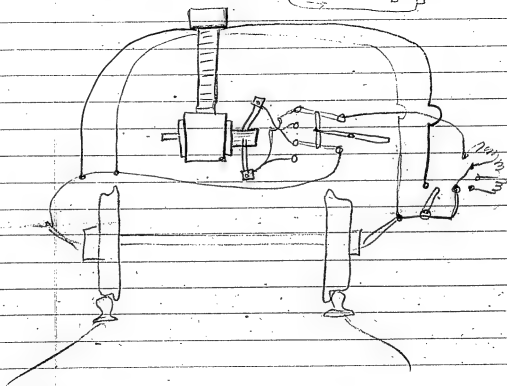
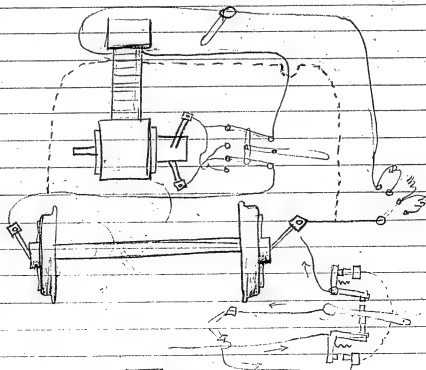


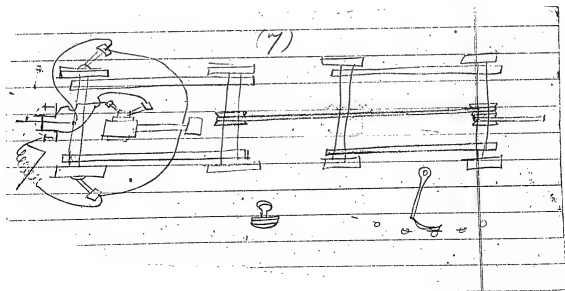
Canal
get through

fine
gets weaker
in middle; lamps

Aug 19, '82

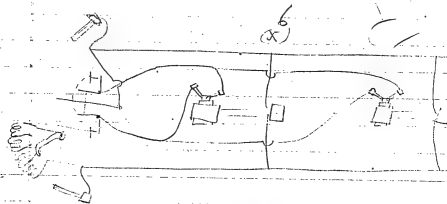
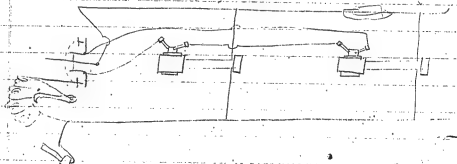
Case 4-48
Application for copyright





17
~~102~~

PW in the house (x)(5)



(x)(4)

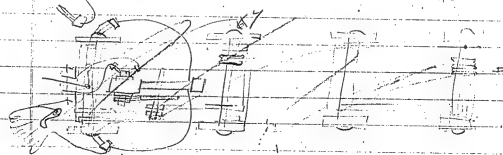
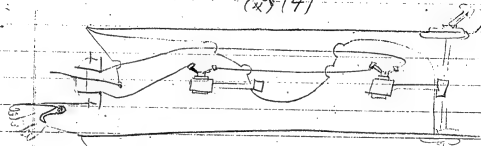
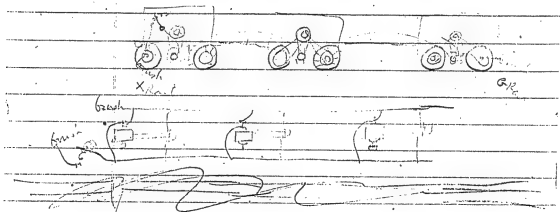
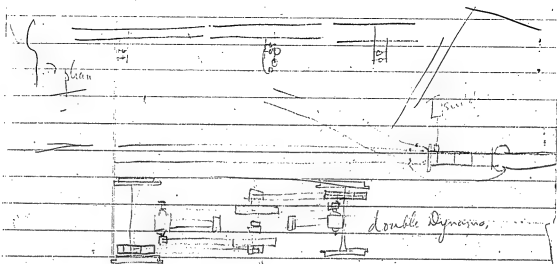
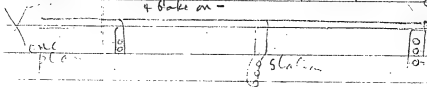


Diagram of the Section

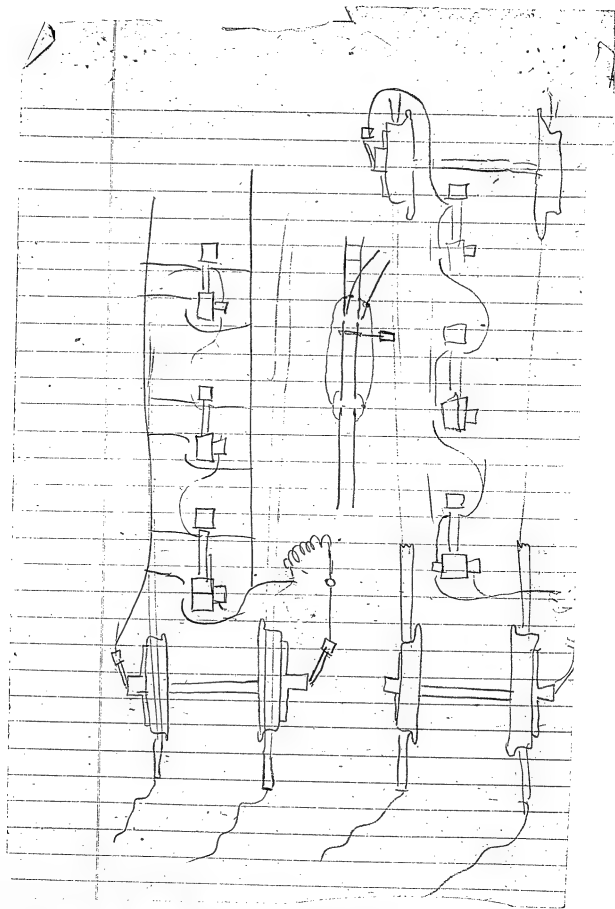


dip the rail except top in a jarpan
+ Blake on -

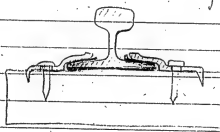


Does dip in loading machine
(Compound of zinc and copper plates
mixed with water and
nickel plate the ends of the rail

dip the first plates in dipping a nickel plate
copper strip may not be used



Whole rail except topped & japanned
by baking process X japanned.
Clath under rail & overlapping so X
won't this is also japanned & baked

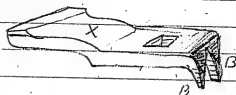


Spikes are japanned. The clath is
may be kept out of the grip & the
driving rail ~~japanned~~ baked to
keep from rusting & used alone
& baked

Application for
patent filed

July 14/84

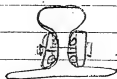
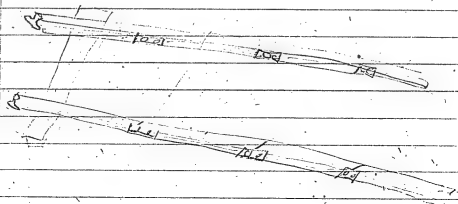
Case 120466



The fringe B as to prevent the spikes
from wedging X too tight. B
against the clath on the rail
& this cutting it it also
prevents X from turning.

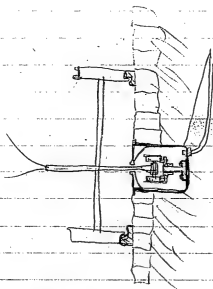
Case no 467

application for patent filed
Aug 14/82

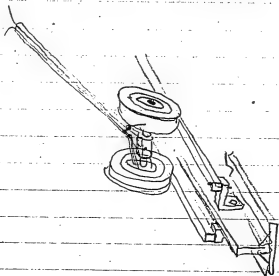
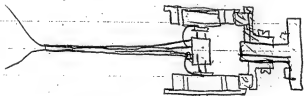


Case 468

Application filed Aug 14/84



Case 1168
application filed Aug 14/82

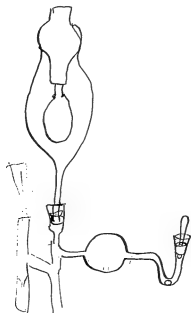


Technical Scrapbook, Cat. 1149

This scrapbook covers the period January-December 1883. The entries are by Edison and relate primarily to electric lighting. Included are notes and drawings concerning lamps, generators, meters, regulators, electric power distribution, and other parts of the system. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney. The case number of Edison's patent application has been written on some of the items.

RICHARD N. DYER,
ATTORNEY AT LAW AND SOLICITOR OF PATENTS,
No. 65 Fifth Avenue,

New York City, _____ 188



② Capsule
of gelatin

enclosing a volatile
compound such as
Carbon ~~trioxide~~
the capsule is
melted allowing
the escape of the
liquid into the
vacuum in the
proper quality.

Cellulose;
Triglyceride;
flemingite etc
to other sub-

New York Jan. 2, 1883
R. N. Dyer



No. 65 Fifth Avenue.

Superior Super
Superiority

Superslot

Supernova

188

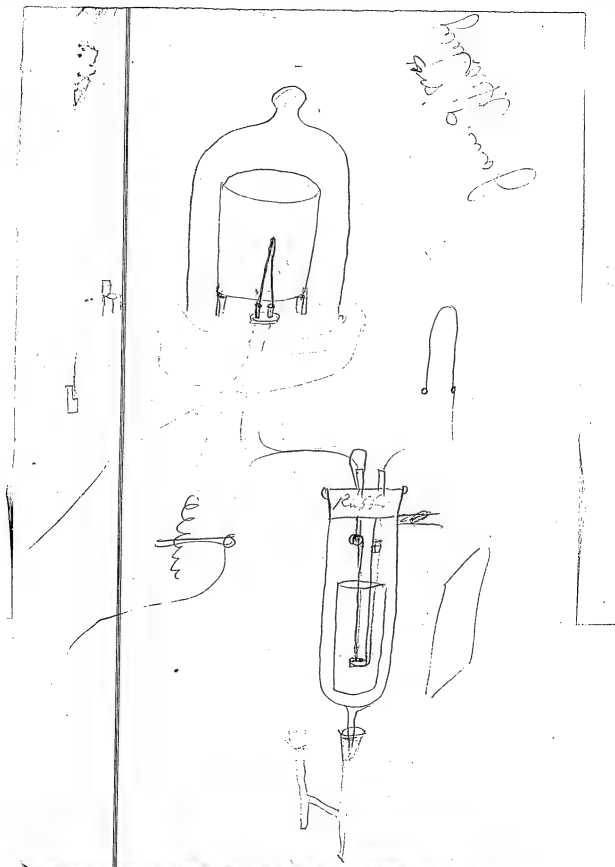
New York Jan. 2, 1888

188
Hussey



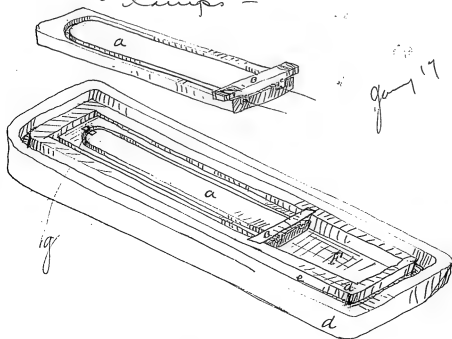
Equivalent = mixture of Potassium
Nitrate & Chloride Ammonia -
Bichromate of Ammonia
Nitrile of Chromium

— January 1883. —

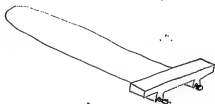
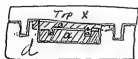


a is a long form with a groove ~~cut~~ moulded
in it into which is laid the filament to be
Carbonized. The ~~two~~ Ends of the filament
are secured to the projecting pins which
form a part of the fixed bridge B. the broadened
^{or flattened} Ends of the filament being in a groove in the pins.
C The form a being movable as the
filament Carbonizes it contracts & pulls
the form along the space F. The space
being sufficient to allow for the whole
contraction of the filament & the form
being sufficiently heavy puts the
right strain upon the filament in the
act of Carbonizing. D is the mould
X The top: the abutment ~~of~~ of the double
gutter being to prevent access of
oxygen which impairs the perfection
of very fine filaments by oxidation.
The whole you see is a regular closed
chamber & the number of these
are laid one on the other & placed
in a ~~mass~~ large etc See my
application of Carbonizing in
double plumbago covers etc
~~about the same~~ you will have to look
at the other patent to get claims

New Carbon form for Carbazing delicate
filaments of Carbon for incandescent
lamps -



go 1' 17 1/2 63
for



The object of the invention is to automatically ~~but~~ maintain a balance or equilibrium in the number of lamps between two circuits

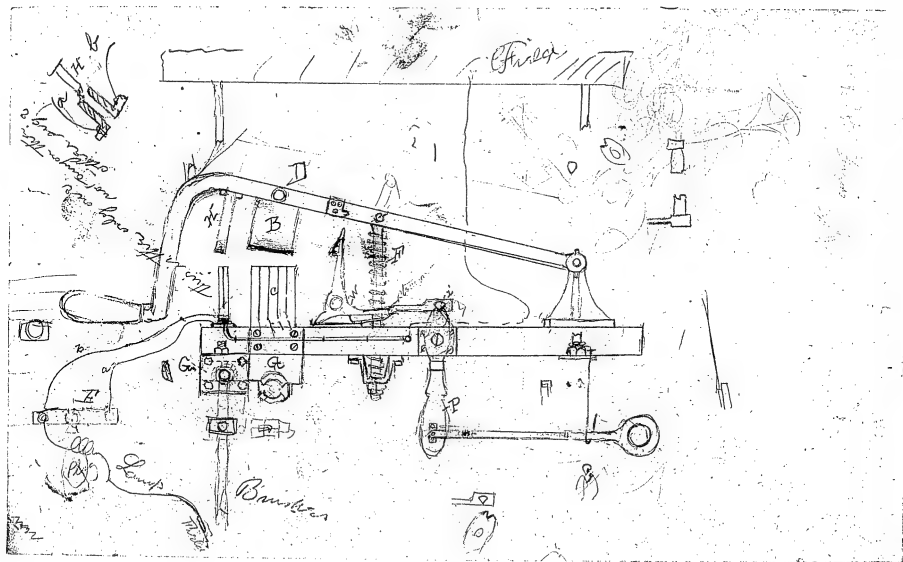
The invention consists in the same:

A. I. B. are double electromagnet one magnet being placed across one circuit & the other across the other circuit, when there is the same EMF across the terminal of each circuit the lever of the Electro magnet is ~~is~~ constantly attracted to that side which it had been previously attracted by reason of a discrepancy of EMF - while in this position the lever & contacts put its multiple arc circuit of lamps across say the No 1 circuit now if No 1 circuit is weakened (10) the EMF falls due to heavy loading on that side, the magnet weakens across that circuit and as the No 2 is raised in EMF the lever is attracted to the other side & this throws the circuit of lamps across No 2 raising the EMF of No 1 & lowering that of No 2 & by having say an automatic Governor device in series 10th house the moment any tendency of overloading one circuit occurs some of the automatic devices will throw lamps from the circuit to the strong side

until equilibrium is attained - with these
devices the circuit would need not
pass to the station but it is preferable
& by its use the number of automatic devices
can be greatly lessened, where there are
a great number of consumers the automatic
device is of course unnecessary but is
valuable where there are but few consumers
& Occasions arise where the currents are
very much out of balance hence there
is a large force of pressure in the conductors
& the lights show great dissimilarity in
the two circuits & this is corrected by
an automatic balancing device or
Compensator,

A clockwork to shift the currents of lamps
from one set to the other could be used,
which is controlled by a differential magnet.
The expansion of wire deflection of galvanometer
expansion of air mechanism controlled by
barometer, or electrolytic deposition could
readily be used to effect the shifting
of the lamps current.

See also make some broad
claims on this
Mch 4 1883 E



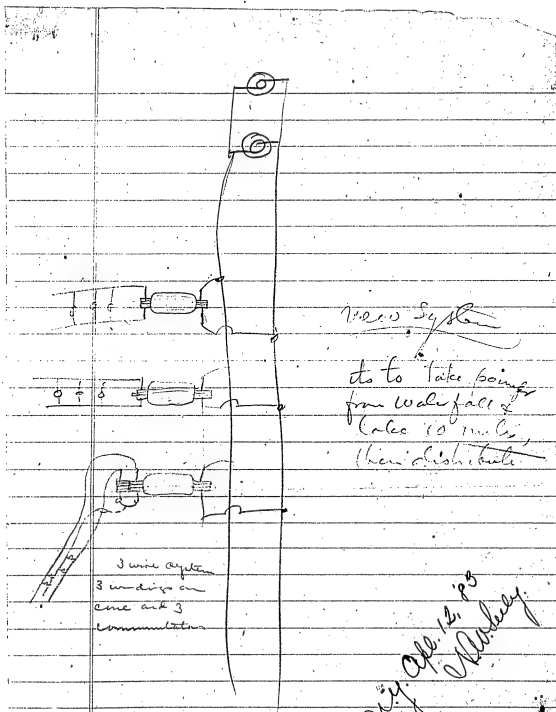
Circuit Breaker

Central Station

1883

GR

— April 1883 —



Wells System

do to take power
from water face
take 10 miles,
then distribute

3 wire system
3 windings on
same coil 3
commutators

W. J. Appleby
Apr. 12, '83

3 separate central stations
independent of each other, with
very high resistance in primary

Case on process

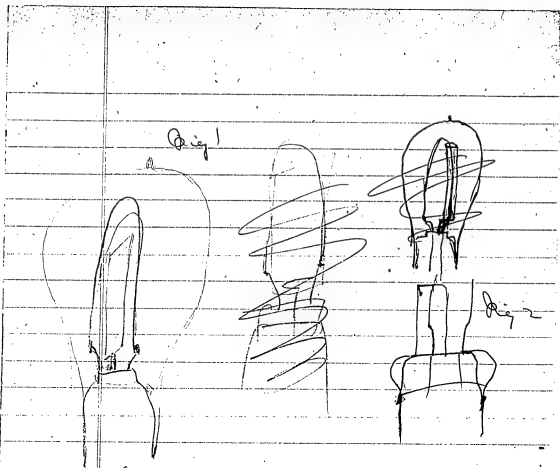
Filaments first carbonized; then
put in temporary vacuum
chamber and heated to
incandescence; ^{to which} then taken
out and dipped in carbonized
^{or carbonized by furnace;}
solution; then used in
ordinary way.

Died up weak spots; no
good unless set before dipping.

April 10, 83

W. S. W.

— April 1883



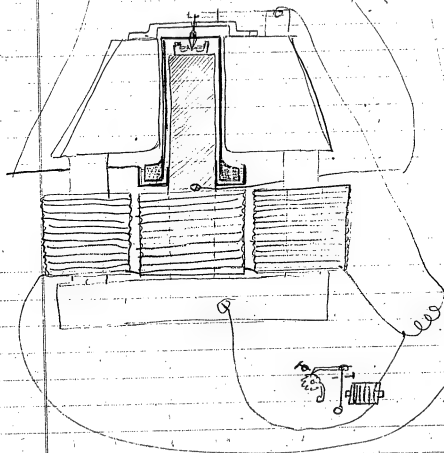
Capit 107 — Fig. 3 — glass of
mica between rim of carbon
of glass tube around one link.

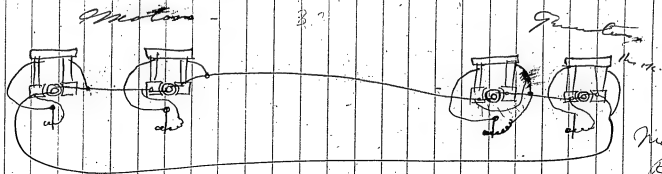
Prepared aptⁿ

Apr. 24, '83

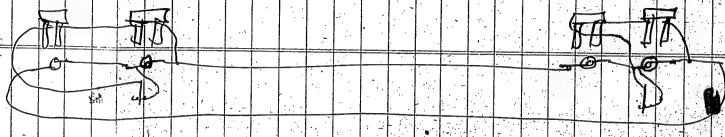
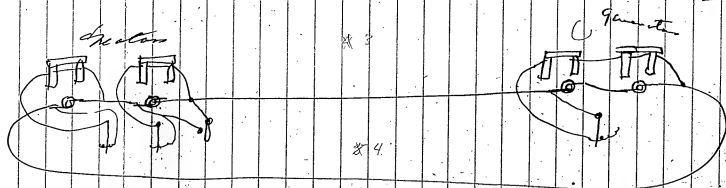
W. H. S.

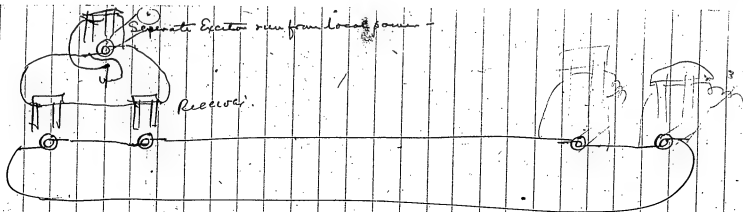
Fig 5





May 7 83
R.H.D.

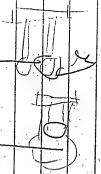
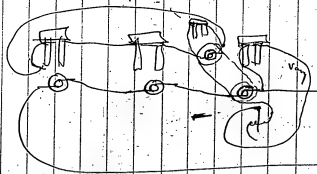
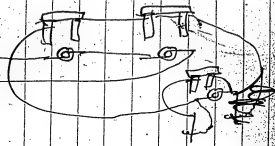
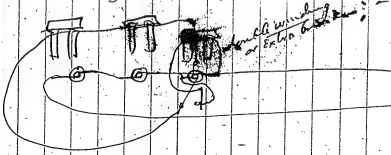




May 7, '83

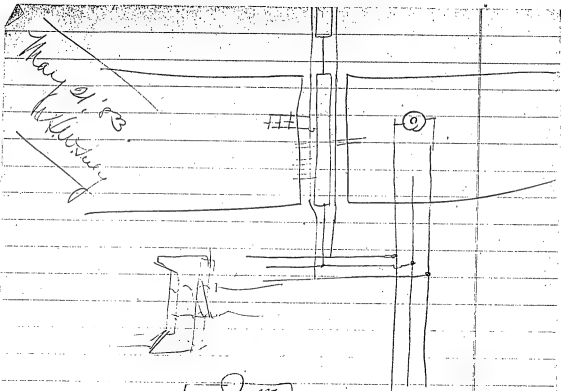
R. A. D.

82



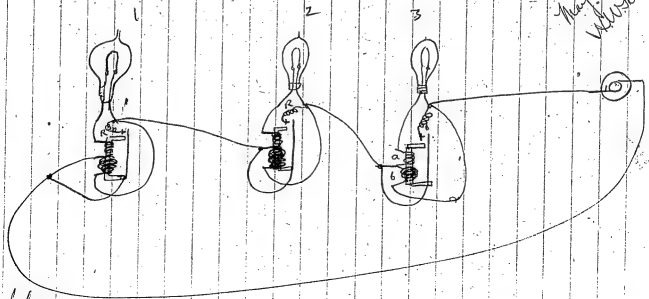
May 7-83
2.1.2





Ans appn on this

See



May 31 1883

Have anything like this

Differential wound magnets when lamps of the current in low res coil a balance the magnetism produced by the current in the fine wire. R is a low resistance or it may be another lamp.

When the lamp 1 2 or 3 breaks the differential bal is destroyed the current of the magnet is altered & the ~~other lamps~~ coil R is thrown in circuit.

E

W. H. H. H.

May 31 1883

702

(1)

The object of this invention is to produce a cheap and reliable meter for measuring the Electric Current or Energy in ~~a~~ system of general distribution of Electricity for light heat & power.

The invention consists in combining a peculiar Constructed Electromagnet with the line upon which the Current is to be measured & providing such meter with proper Counting or registering apparatus and also devices for causing the meter to perform a definite amount of work.

~~The following~~

Fig 1 shows a section of the meter -

B is the iron base which forms the back of the Electromagnet

C¹ being one pole, & C² C³ forming the other the End pieces E F the other pole

C¹ C² C³ are provided with groups of wire D¹ 2 & 3

are all placed in one circuit & this circuit forms a multiple arc circuit across the various conductors upon the common pressure

2.

The direction of the current is such
E E are ~~both~~ positive, which
C' opposite is negative,
thus the lines of force pass from
C' to E from the entire circumference
of C'

On the top of C' is a depression
with a bearing into which a pivotal
point S runs, this depression is partially
filled with mercury. The point
S is made of platinum or
platinum Iridium alloy so as not
to amalgamate with the mercury
in the depression. The mercury
being used to make good &
sufficient contact with the
revolving pivot to carry without
heating a powerful current.
F is a copper cylinder to
which the pivot S is secured.
This cylinder is shown in fig 2
at the bottom are several paddles
of platinum ~~which~~ which
rotate in the circular trough
E fig 2 which is partially
filled with mercury which
acts both to make episcureal
contact with the cylinder
which is to be rotated upon.

its pivot S. and also to cause a definite amount of work to be done by the cylinder in the act of rotating.

Another bearing N supports the extension of the pivot S. is marked T. upon the extreme end of T is a worm which acting upon a worm wheel Q gives motion to the train of wheels which serves to register or indicate the number of revolutions of the cylinder F. the same as the counter used in a gas meter the revolutions being proportional to the strength of the current. Instead of a worm & worm wheel the rotating cylinder & shaft may at each revolution close momentarily a local circuit & energize an electro magnet which serves to give attraction to the indicating mechanism. This is shown in fig 4. T is the shaft w a point P a platinum tipped spring R a demagnetizing point at every revolution the point W comes into contact with the spring P & closes the circuit.

4 to the magnet X.

The method of connecting the mechanism to the line is shown in fig.

L archmains of the street.
PN the mains in the house.
Wire 1 runs to RR which is a
resistance coil. thence to the
helix D' thence through helix
D² thence through helix D³
back by wire 2 to the other
pole

thus keeping a current constantly
circulating around the coils
of the field magnet -

The main line passes by wire
3 to the mercury in F thence up
through the cylinder around its
whole circumference to the pivot
5 down through the iron core
C' to the base thence by wire
3 to the lamps -

When no lamps are in
circuit only the field of
force magnet is energized
but the moment a lamp is
placed across the circuit

5- or pole' a powerful current
passes through the meter as
described & causes the
cylinder to rotate. If now a
2nd lamp be placed across
the pole twice as much current
passes & the speed of rotation
of the cylinder is doubled.
In fig 5 the electrical contact
method of working the indicating
apparatus is shown the shaft
T in rotating makes momentary
contact with P once every revolution.
This closes a local circuit
around the Resistor R.R.
in which current is the
maximum. X

That the rotating shell may
so perform work so that the
current is directly proportional
to the rotation the paddles upon
the cylinder must be arranged
in a proper manner ~~and~~ + retarding
pieces may in some designs be
found necessary. The retarding
pieces being connected permanently
with the circular trough so as
to prevent the meter rotating
as a whole - again during

6

Permanent
magnets
to
be
used
when
necessary

to the large size of a meter &
the consequent large initial
friction of the parts, It may be
necessary to make the paddles
conical with the cylinder
loose but so arranged as to
be thrown in or out of the
mercury more or less so as to
cause the rotations of the
shell to be directly proportional
to the strength of the current.

It is not necessary that the
shell should rotate as it may
be held still & the magnet
rotate as in fig 6

~~Even ~~it may be a~~~~
Even permanent magnets may
be used & electro magnets
dispensed with,

To prevent waste of electrical
Energy by keeping the field
of ~~fixed~~ magnets constantly
charged when there is no lamps
connected, an electromagnet
may be placed in circuit at
X which having a lever & point

7

may serve to close the same when a lamp is connected, the points & lever being manipulated in the field of force circuit. The circuit is opened by the magnet only when ~~the lamp~~ there are no lamps across the line,

Thus by the use of a non commutator motor or rather monodynamic motor I am enabled to convey powerful currents through the apparatus without loss by ^{contact} metallic or multiple contacts and also to obtain slow rotations with powerful currents, and at the same time attain the result with exceedingly small ~~friction this enabling motor~~ ~~other than that provided~~

It is not essential to have an Electromagnet field as the rotation of the cylinder will take place if a helix alone is used as in fig. 7. but by the use of iron a much less current is required to perform the work =

Claim.

A monodynamic motor substantially as described

A monodynamic motor sub as described for giving motion to recording or indicating apparatus

A monodynamic motor sub as described having its moving or inductive parts interpolated in the circuit with the translating devices, and a constant magnetic field produced by the action of the current from a multiple arc ckt across the line,

A monodynamic motor without a commutator interpolated within the circuit the current of which circuit it is to measure in combination with a field of ^{magnetic strength} ~~a field of~~ force, and recording or indicating apparatus.

9

A monodynamic motor arranged to perform a known & definite work in excess of the ~~for~~ normal friction of the motor ~~and~~ & actuated mechanism so as to cause the number of revolutions of such motor to bear a known relation to the strength of the current,

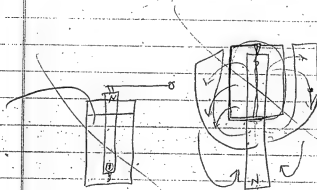
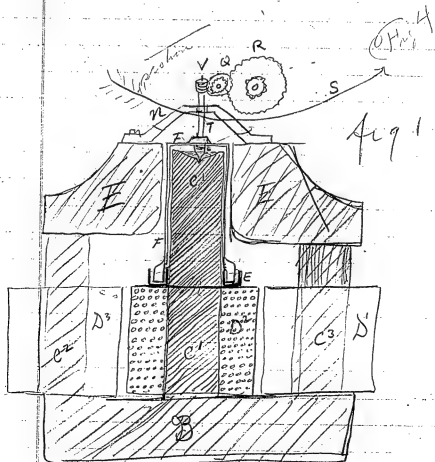
The Combination with Electro lamps worked in multiple, with the motor in the omnibus wire of all the lamps.

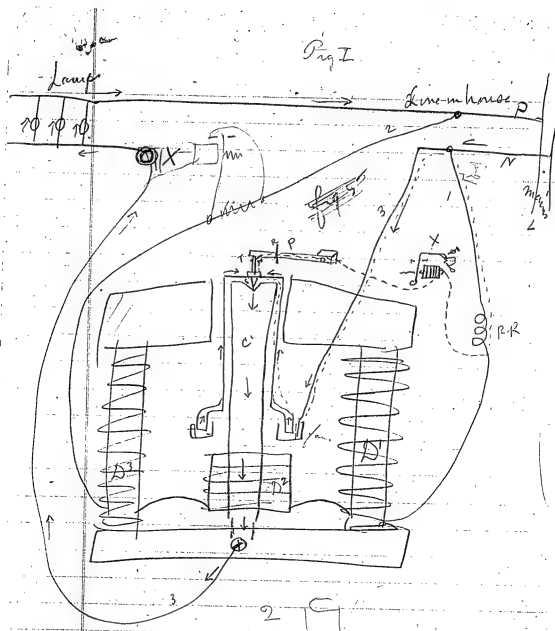
The use with a monodynamic motor of a contact whereby at each revolution, or more closings of a separate circuit is made such as containing an electromagnetic oscillating recording or indicating mechanism.

The Combination with the monodynamic motor of worm & worm wheel,

The Electromagnet in main circuit closing when lamp put on to close the field circuit,

Fig 4





Connections of the meter

The constant field is taken across the house mains in multiple and the resistance of the constant field magnets is very high so that only sufficient current to energize the field is used -

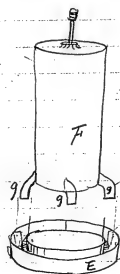


fig 2

platinum partition -

face

though containing mercury
into which platinum is dip
though may be made of metal
withstanding contact by mercury
not being generated

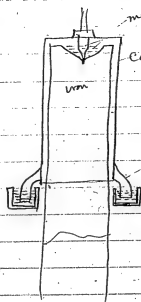


fig 3

copper tube

platinum piece

mercury
platinum dividing point where it
meets with mercury

Electrical Control since Every
revolution

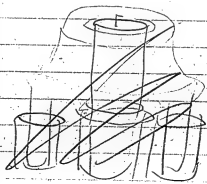
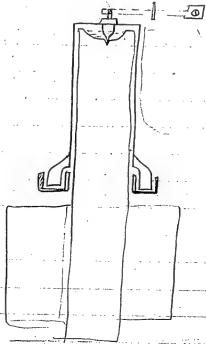
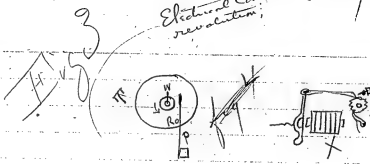


fig 6

case held still

on Corrosion test

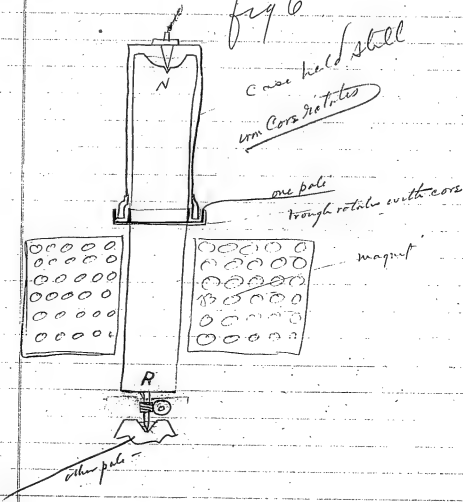
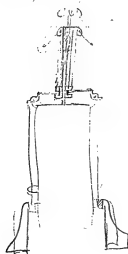
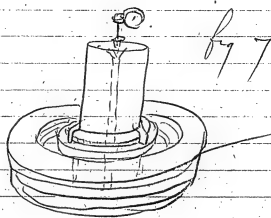
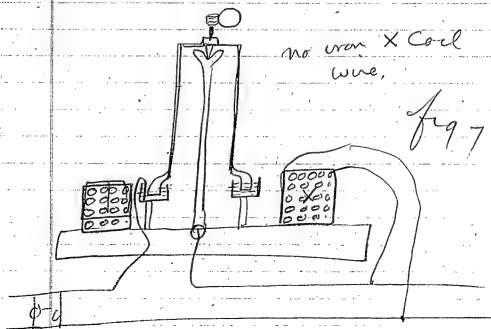
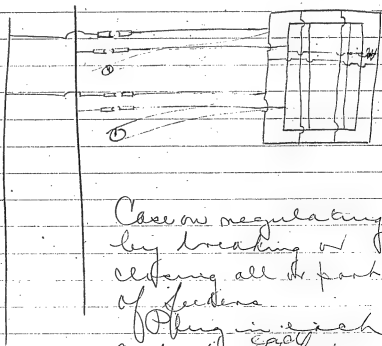


Fig. 1



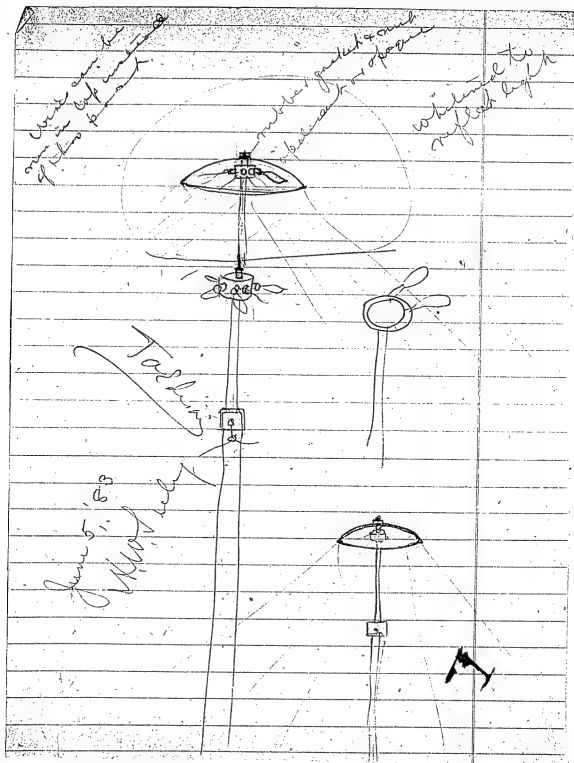




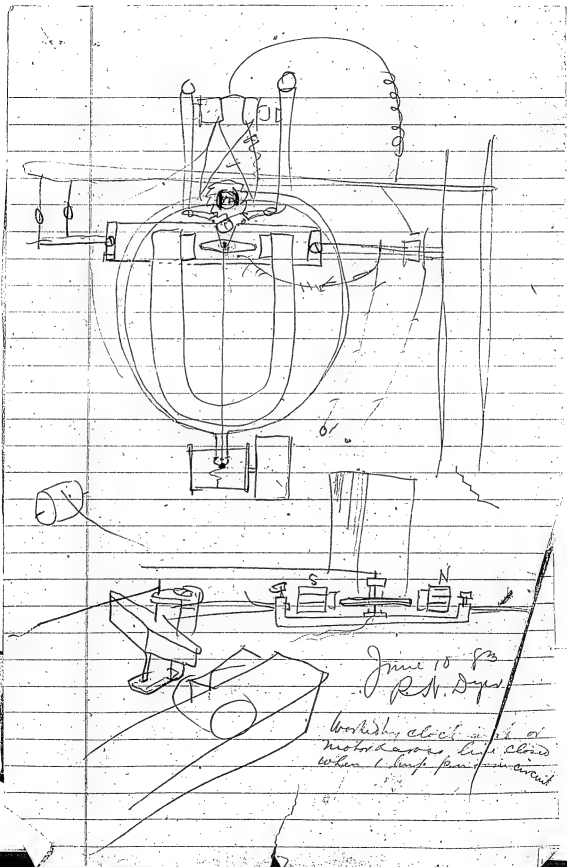
Case on regulating
by breaking or
closing all the part
of feeders

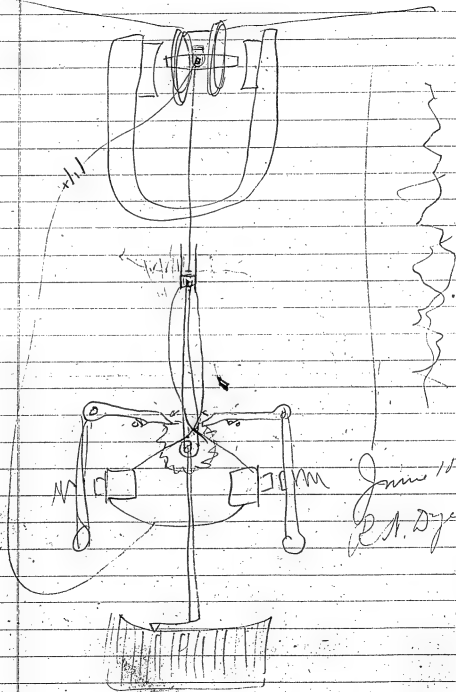
Plug in each
circuit of feeders
X

June 5, '83

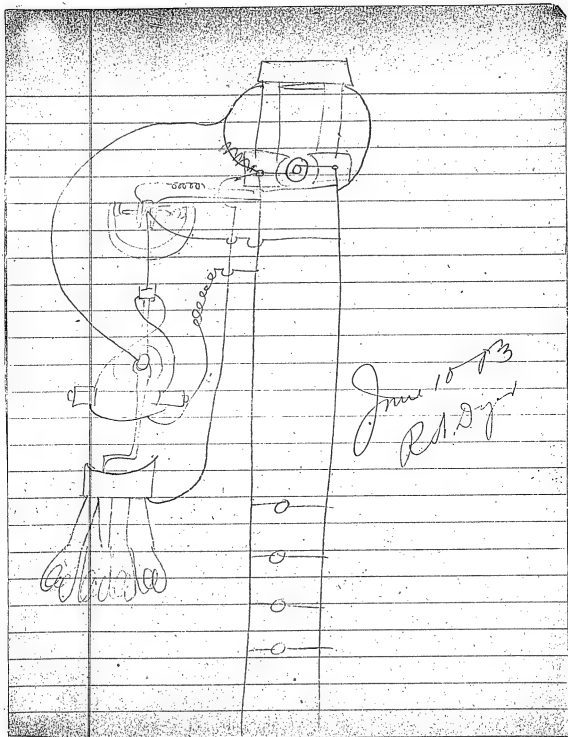


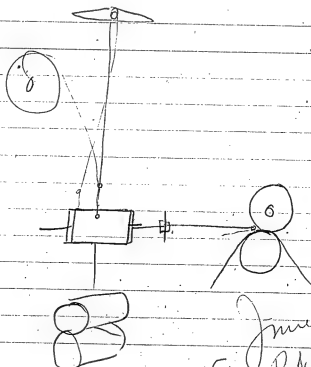
June



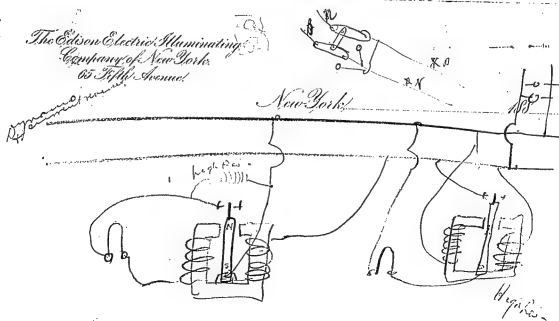


June 1983
R.A. Dyer.





June 10/13
RA. Spt

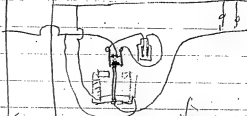
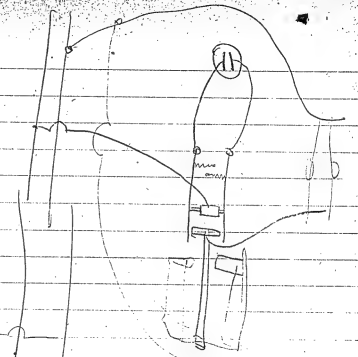
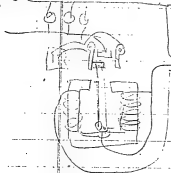


*June 11, 1883
R. D. Dyer*

Mention that apparatus might
be used for working other things &
claim broader claims app. in
combination with electric lighting
system wherein lamps are
not affected by change in
current.

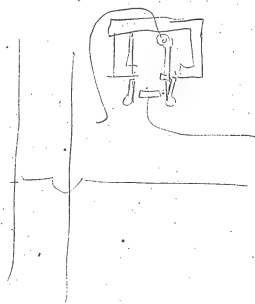
Electro-Light Co.
machines can't be used,
but there is no need of
making mention of this -

57 a
Add time
& day



five coils on magnet

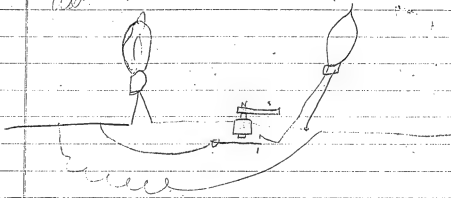
June 22, '83
Whitney



200
100
50
25
10
5
2
1
0

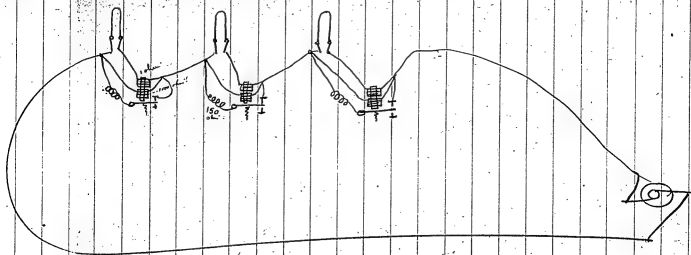
578

all

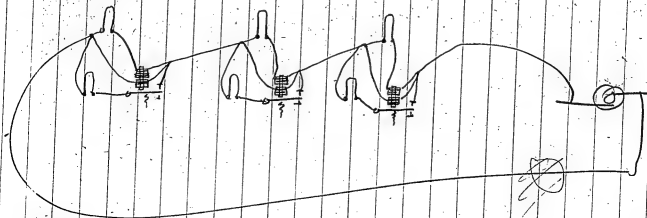


June 25, 89
W.H.

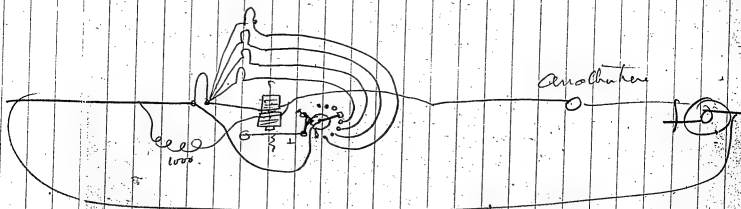
No 1



No 2



Nº 3



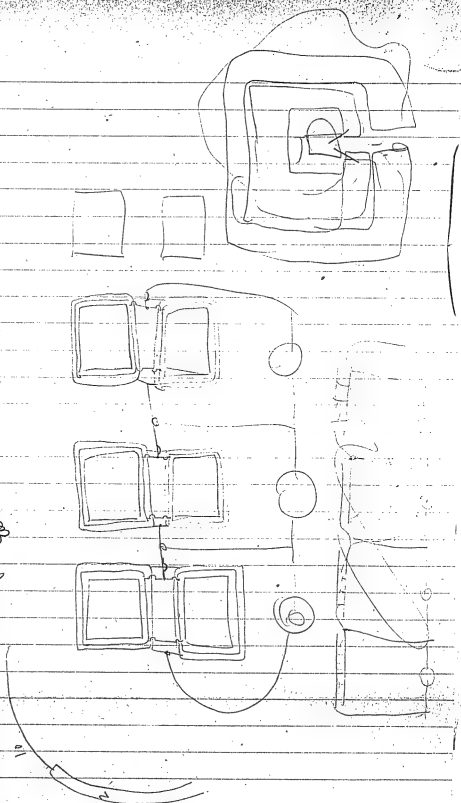
July



Wash
July 23, 1900

ground connection to divider m. f. 4

Aug 2 1933
H. H. H. H.



Patent

Twisted tight into
homogeneous tissue

The invention consists of forming a cylindrical filament for carbonization by
Curling out a blank from paper or other
organic tissue with broadened ends & twisting
the same with a cementing material to form a
cylindrical filament with thickened ends.



Aug 21, '83
J. H. H. H.

The flat blank of tissue paper is covered with
a carbonizable cement such as gum tragacanth,
& twisted together by machine in a even manner.
An alternative is to twist without the cementing
material afterwards gelatize the portion of the
cellulose of the paper by immersion in a solution
of Hydrofluoric acid & cement the whole into a
homogeneous mass.

Claim: The filament of for carbonization made out as
herein specified -

Will that form of claim cover better than broad
specific claim? & - &

Aug 1883

Aug 21, '83
H. W. Wiley

The object of this invention is to prepare blanks from which filaments may be cut or punched for producing flexible filaments of Carbon for making Electric Lamps.

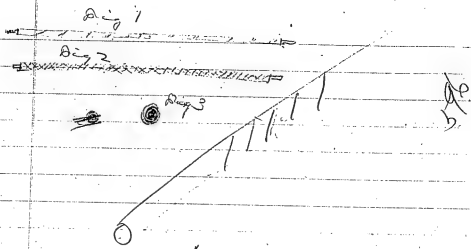
The invention consists in employing thin pure & nearly made tissue paper ^{rubbing} soaking several pieces of the same in a thick mass of gum tragacanth ~~from~~ or other suitable Carbohydrate or viscous substance carbonizable without entire volatilization then place 2 or more sheets of paper together & drying the same under steam & pressure to produce a perfectly even blank - the ~~gum~~ paper having a grain one sheet is laid on the other so the grain shall be at right angles, a modification of this invention consists in treating each sheet simultaneously with Hydrofluoric acid & then immediately putting them together as stated, drying under steam & pressure.

Claim. A blank for culturing filaments for Carbon from consisting of 2 or more sheets of paper secured together by a carbonizable cementing compound for the purpose.

2nd - Drying under steam & pressure.

3 across the grain -

producing the cementing by acting on the sheets themselves ~~the~~



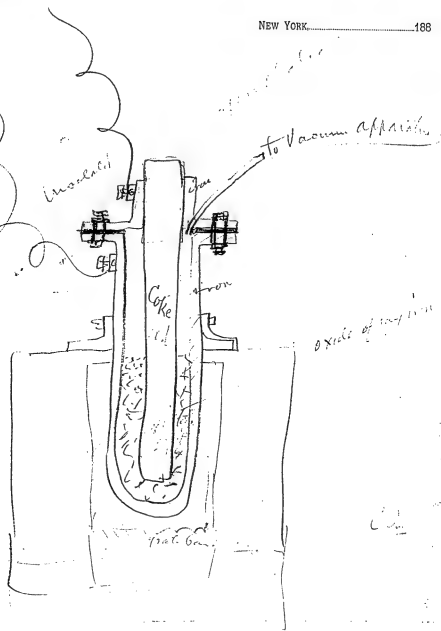
Covering of ~~concrete~~
 paper or nat —
 Refraining covering of
 hair or wool with ~~the~~ or
 the mechanical ~~of~~ ~~the~~
 caping ~~it~~ ~~is~~ ~~non~~
~~porous~~ ~~is~~ ~~just~~ ~~to~~ ~~prevent~~
~~the~~ ~~high~~ ~~tension~~ ~~in~~ ~~the~~ ~~caping~~
~~the~~ ~~or~~ ~~any~~ ~~of~~ ~~the~~ ~~new~~
 of ~~the~~ ~~included~~ ~~in~~ ~~the~~ ~~same~~
 wrapping ~~to~~

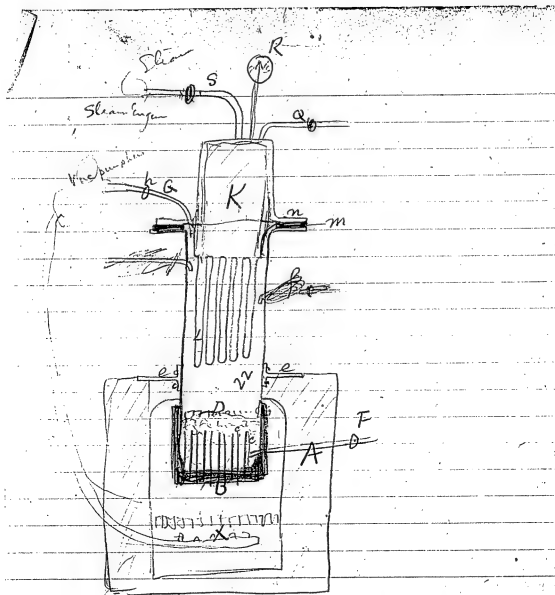
Paper in combination ~~with~~ ~~the~~ ~~used~~
 spirally with overlapping edges

Aug 31/13
 Wm

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK _____ 188





Sept. 1883
 Anthesides
 Rich. H. Dyer
 Newbury

Sept 7 '83
Pat. A. App.
H. H. H. H.

The object of this invention is to produce electricity from the ~~dry~~^{or oxidation} oxidation of a substance or oxidizable substances such as carbon, or Carbon + an oxide of a metal,

The invention consists in oxidizing the oxidizable substance in an exhausted chamber, formed of two insulated conductors or collectors of the two electrical set free by the decomposition + oxidation.

The invention further consists in assisting oxidation + decomposition by the application of heat exterior to the chambers.

The invention further consists in causing heated electrified gas produced by combustion + decomposition within a closed chamber to become a good conductor of electricity by means of ^{keeping the} rarification of the gases of the chamber at a point near a vacuum + thus cause the practical utilization of the electricity produced by dry combustion by causing continuous current of great

2
S. J. D. P.
for H. D. P.
2
Volume to be set up-

The invention further consists in absorbing the waste heat of the chamber by water to form steam to give motion to the steam machine which keeps of a continuous process of exhaustion of the gases from the chamber to pump water to the chamber to supply heat lost by formation into steam + the utilization of the hydrogen given off to heat the chamber.

The invention further consists in ejecting water ^{vapor} into the vacuum chamber upon the incandescent combustible substance to produce a decomposition of the water by the reducing action of the incandescent metal + thus set free the two elements and the or the equivalent of mixing with the Carbon an oxide of a reducible metal its oxygen combining with the Carbon to form Carbonic oxide which passing to the insulated chamber giving electricity to it of one polarity while the reduced metal retaining the electricity of the opposite chamber remains to charge the other chamber.

Sept 13
P. 10 of 10
Thursday

3

A is a furnace

X grate bars

22 a flanged boiler tube with a thick
Cast iron head B. on the inner surface
of which are iron rods projecting upwards
& between which the Carbon D is packed

K is the other chamber with water
tube L projecting down into the
chamber 22. The 2 chambers are
insulated from each other at the
flanges N by asbestos packing &
Cement at M. This forms a closed
chamber containing the ~~Exhaustible~~ ^{portable} ~~water~~ ^{heat}

K is filled with water by the pipe
Q which is connected to a feed
pump R is a steam gauge

G is a metallic pipe passing through
K but not insulated therefrom
& passes into the chamber 22

This pipe is connected to a vacuum
pump worked continuously by steam

F is a pipe for allowing water vapor
or steam to pass into the chamber &

Come in contact with the incandescent
material. The ~~Current~~ ^{Curve} being brought to
incandescence by the furnace.

4.

Feb 23
 Rec. H. H. Byers
 H. H. Byers

~~Claim~~
~~Art of~~

Several of these chambers may be connected in series the ~~chamber~~ ^{chamber} 22 being connected to the ~~chamber~~ ^{chamber} K of the next chamber or they may be connected in multiple arc,

When water is not used Oxide of Lead may be mixed with the carbon in the ~~case of~~ ^{anodes} ~~anodes~~ ^{or} Coke or Lampblack may be used ~~with~~ ^{as} all these forms of Carbon including Anthracite Coal become excellent conductors when incandescent although the latter is not a conductor when cold. When an oxidizable metal is used fear

Claim - Improvement in the art of obtaining electricity sub as described

The Method, & all the broadest claims that a New & novel method will permit you to make.

Electrical Pressure Indicator

Given:

I have just completed a pressure indicator which works perfectly.

X X' are the coils of copper wire
L is heavy steel needle
magnetized it is secured on
a torsion wire T which has its
torsion increased or diminished by
turning the smooth steel M
round this is held by friction
the cross piece being split &
2 screws ^{3/4"} used = K is a spring
which keeps the wire T stiff
P is a nut for increasing or
diminishing the spring -
Q is an index straw. The torsion
of the wire keeps needle at
zero -

2

LM is a regular lamp
In addition there is a strip of
of platinum R which is secured
to a wire & passes through
glass, one end is connected
to the galvanometer the
other end of the galvanometer
is connected to the pole
of the lamp upon which
the blue halo appears.

when the lamp is brought
up to incandescence a constant
constant current of considerable
power passes through the
galvanometer wire & deflects
the index. The scale may be
graduated to read Volts
or candle power. - A Resistor
M. may be put in with the
lamp & adjusted so as

to standardize the lamp
to raise & lower in candle
power like those on the
Circuit - It is very sensitive
~~up to~~ with regular lamps
it deflects very little until
you reach 12 candles
~~after that each candle~~
after that it is more nearly
proportional to the candle
power - In fig 2 I
show 2 lamps one
runs all the time while
the other is used to be
thrown in circuit to see
that the regular one has
not varied -

Want broad claims
on using the Current
given out by ~~water~~
Vacuum Lamps for this
purpose & other purposes

This is absolutely new
& novel -

E^d

Wm.
Oct. 13/83.
Hewlett.

Ref. No. 100
Oct. 16, 1900
Marbury

fig 2

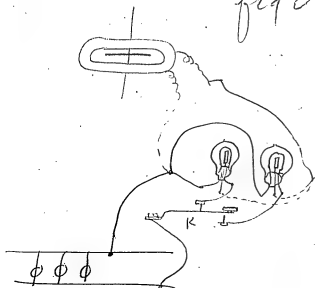
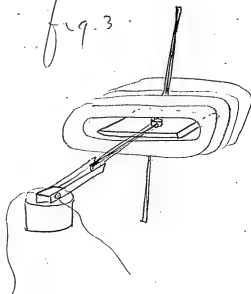


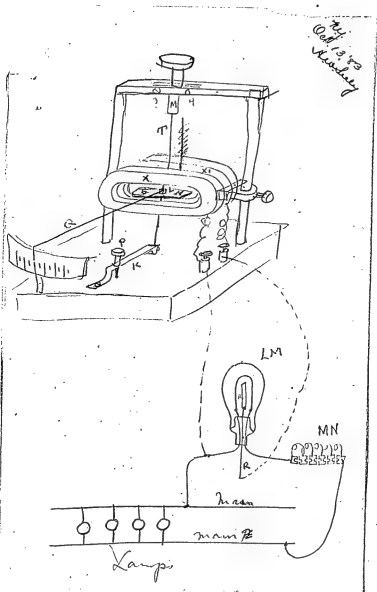
fig. 3



Ref. No. 100
Oct. 16, 1900
Marbury

fig shows how it can
be arranged to close the
circuit for working
auto Regulator &
perform other things

- October - 1883 -



BERGMANN & CO.
ELECTRICAL WORKS,

SOLE MANUFACTURERS OF

FIXTURES AND APPLIANCES

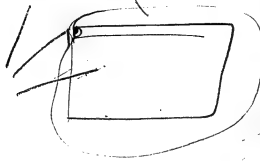
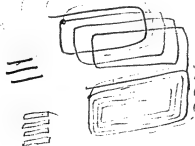
FOR THE
EDISON ELECTRIC LIGHT.

Nos. 292 TO 298 AVENUE B.

New York, 188

Oct 16/13

Chicago
Oct 16/13



- November 1883 -

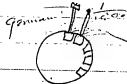
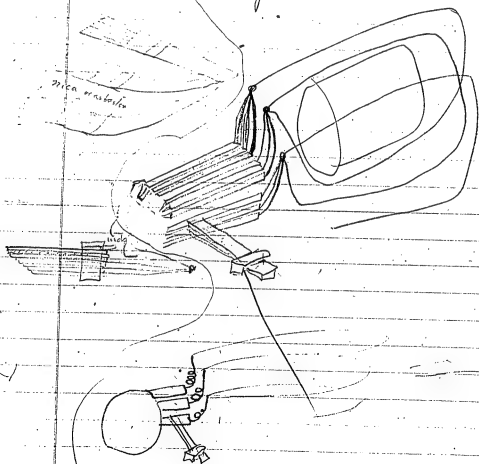
276, 283
Oct 24, 83

Nov 9, 83
Hussey



Also include in patent

also include



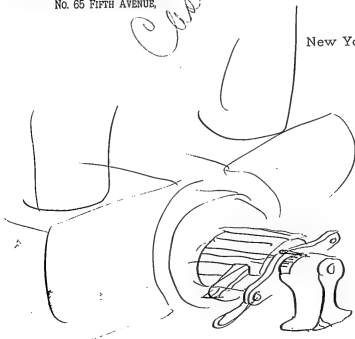
Oct 24, 83

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,

Form 2.

New York, Dec. 18, 1883

W. H. P. H. H.



Patent

Scale in amperes. The sparking
point of the brushes depends
directly on no. of amperes. By seeing
when brushes are adjusted you know the
load on machine.
Especially when machines of diff. capacity work.
L. & M. G. bus come they would give same O,
and consequently are burn out.

Dec. 10 83

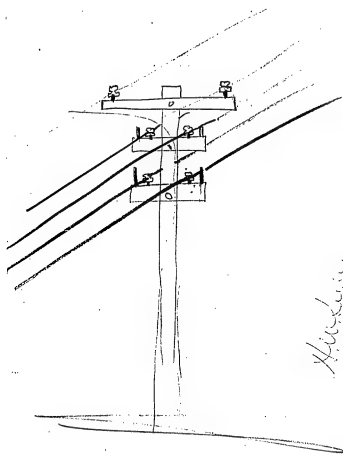
Witness Rich. & Agor



Lamp - safety catch
etc

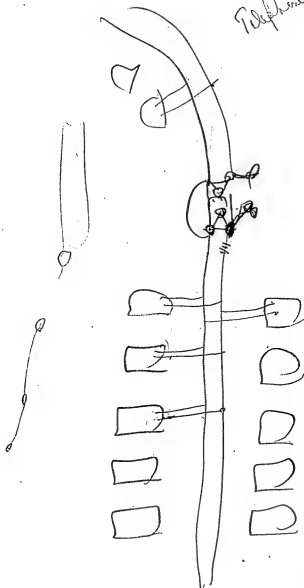


another way



Hickling
A. M. E.

Telephone



Sub-electrometer no.

Volts out

Increase above
Cathair Candle
power. More
current due
to decrease
rest.

5 volts on 16
Candle 100 candle
lamp.

Decrease nearly
proper to Candle
power.

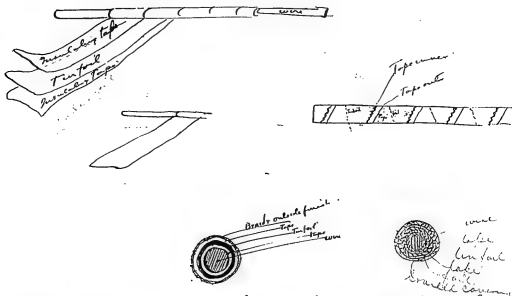
Technical Scrapbook, Cat. 1150

This scrapbook covers the period January-December 1884. The entries are by Edison and relate primarily to electric lighting. Included are notes and drawings concerning lamps, generators, meters, regulators, electric power distribution, and other parts of the system. There is also some material pertaining to ore separators, chemical stock printers, and telephones. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney. The name of Edward C. Rowland, Edison's patent draftsman, appears as a witness on many of the documents. The case number of Edison's patent application has been written on some of the items.

New York, 188

Dyer -

Take out following patent



I first wind a muslin tape strip on the wire overlapping
it then this is smoothed down and turned over head
or ~~any~~ ~~another~~ other metallic foil ~~on~~ is wound on
a strip overlapping, the center of the strip
being over the lap of the tape: over this again
is lapped another tape, the center of which
is over the lap of the foil. The whole is then
preferably finished with cotton but before the brass
is put in another layer of foil may be put on & the
brass placed over the whole.

has tendency to make it fire proof
Especially if the fail is Copper fail.

Claim Insulating wire by first coating
the wire with an insulating ^{flexible} tape overlap
then a layer of overlapping metallic
foil then tape ~~flex~~ + bond

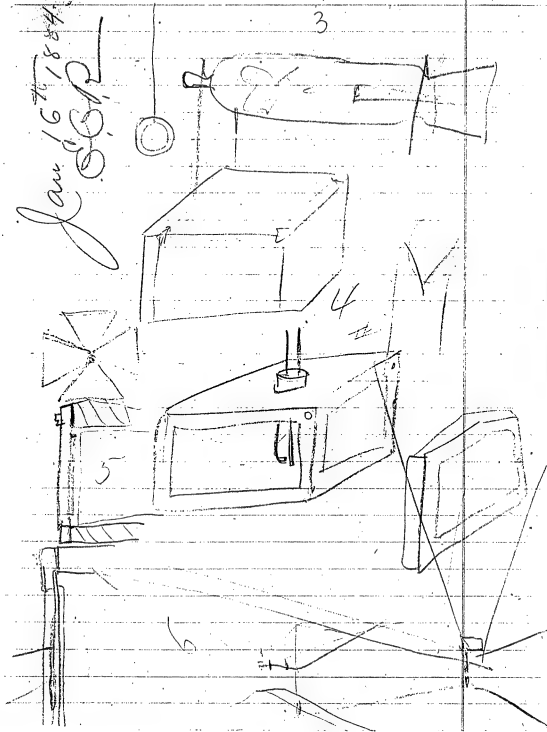
also with double metallic foil + bond

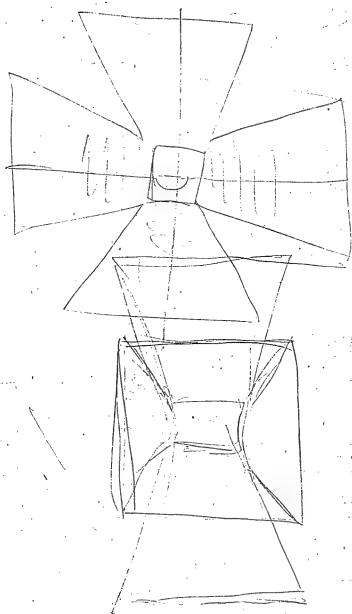
also; with inner tin or lead foil +
outer of Copper or other high melting
point foil,

Describe that the tape is strips
of paper or woven fabric saturated
+ coated with an insulating
Compound

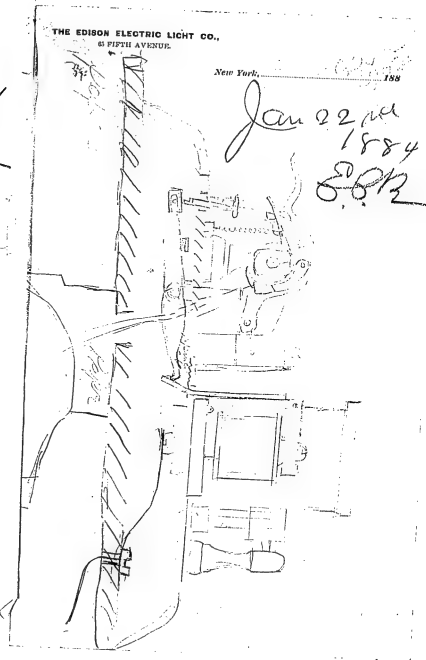
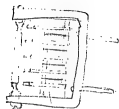
Kruzi says the insulation of this
wire is astonishing }

Jan 16th 1884
O.C.R.





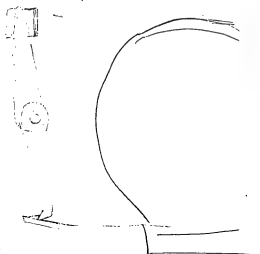
Jan 22nd 1884
S.B.R.



THE ELECTRIC LIGHT CO.,
AVENUE

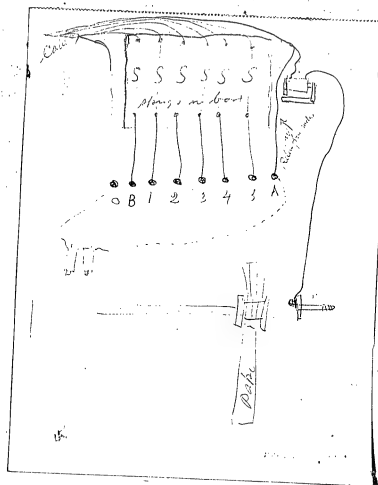
New York

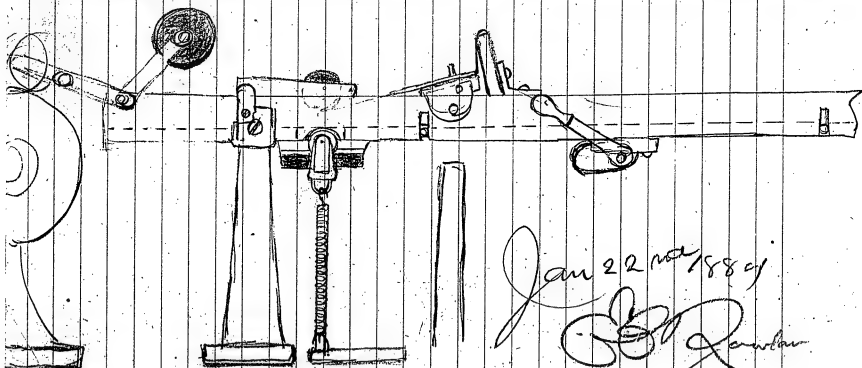
1888

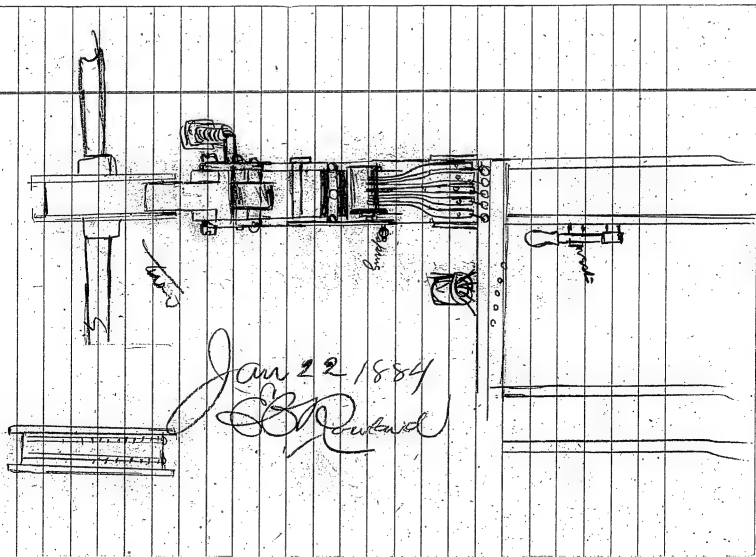


1/4



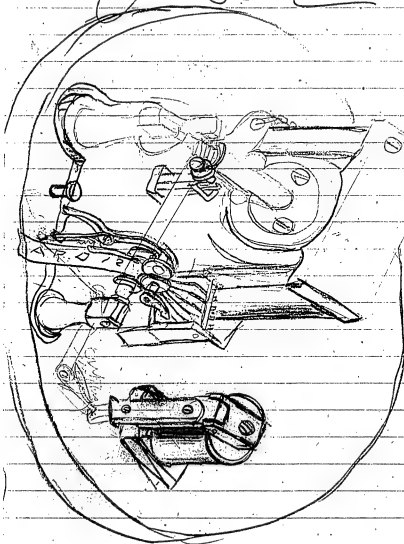






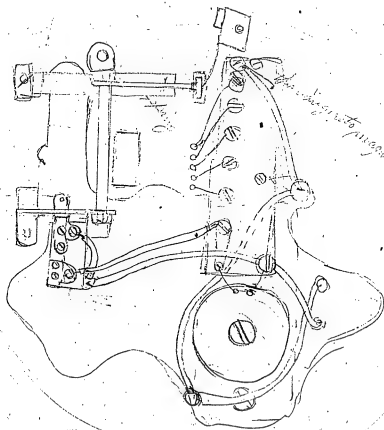
Jan 22 1884
E. R. Ruland

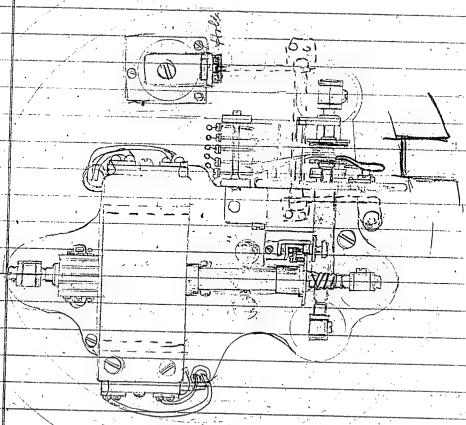
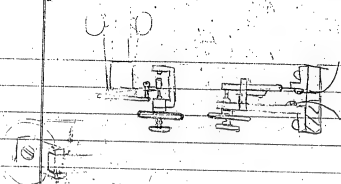
Jan 22 / 884
SBR

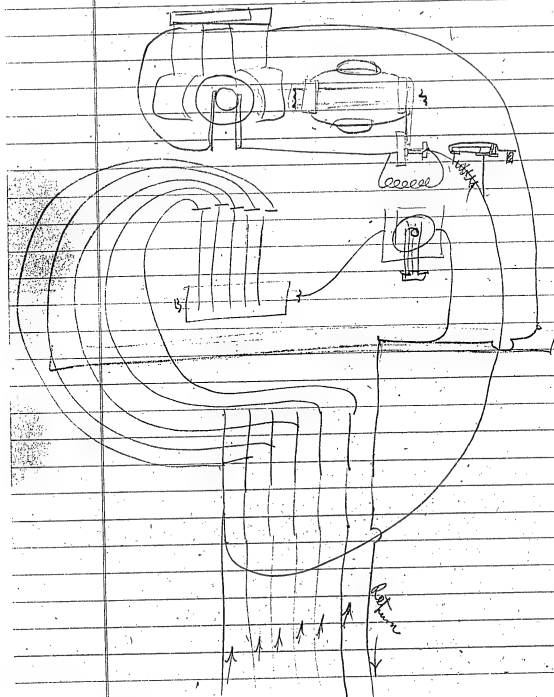


Jan 22nd 1884
E.B.R.

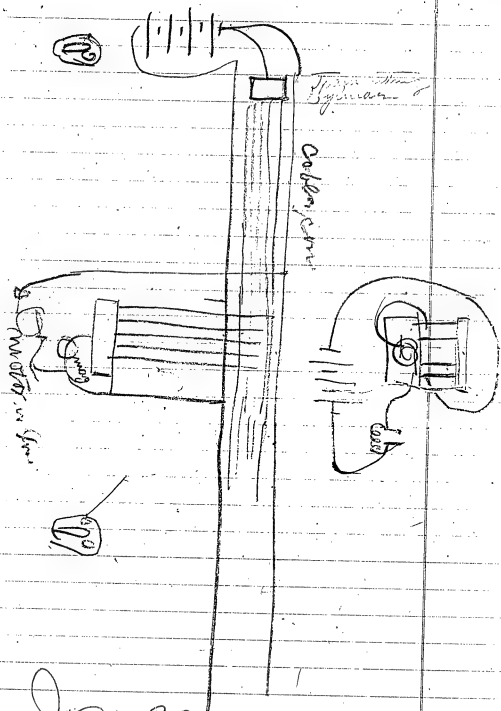
017



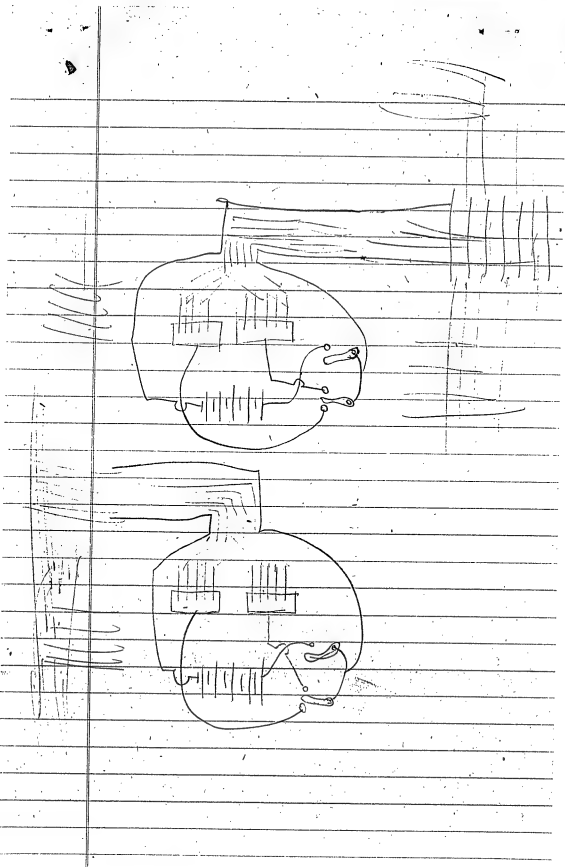


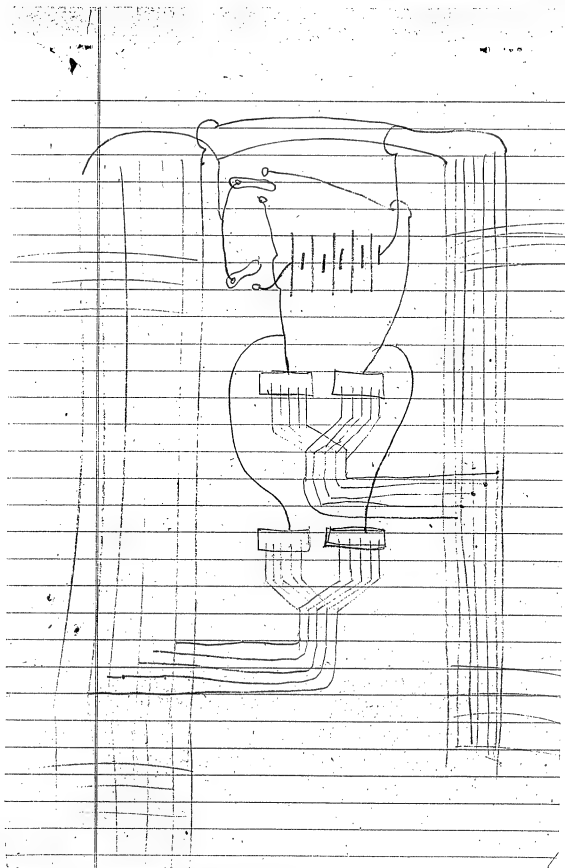






Jan 22 1881.
G.B.R.





Tram
Chassis

Cross section

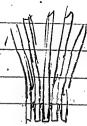
Enlarged section pen-

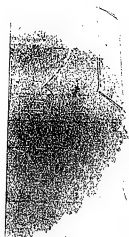
Diagram

Enlarged view of
ends of pens-

Diagram of
Connections

Tram





Prof W. A. Brown
Sketches of *Spring*
1884

New York,

Feb 6 - 1887 188

Dgr-

Please take out patent
on armatures in series & multiple
are in the field of force,
preferably Multiple arc, I find
that with the present machine
of a large bar of iron 62
placed across the field when
armature is running that
It does not bring down the
Volts 10 percent. The short
circuited off the lines of
force through the bar is calculated
as great as would be caused
by the addition of another
armature in Multiple arc
I don't mean Multiple arc
Electrically only in relation

New York,

188

to the field (10) magnetically
thus I shall be able with
very little addition of iron &
Copper to run 2 armatures from
one field at full volts =
Regarding wires in Experiments
in boring out field I found by
using long field magnets that
boring out 50 and 100 times
the space between the bars of the
armature & the field piece that
it only lowered volts 15 percent
here by ^{with} more iron I could work
2 armatures. There is a curious
gain here that I don't fully
comprehend - make good
claims to the increased utilization
of the lines of force.

All Communications to be
addressed to the Office.

Form 1 A.

EDISON MACHINE WORKS.

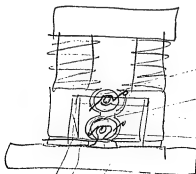
OFFICE, 65 FIFTH AVENUE.

Works,
104 George Street.

New York,

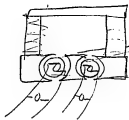
188

Multiple and

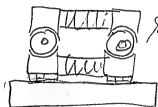


Series-Magnetically Spkg

3



4



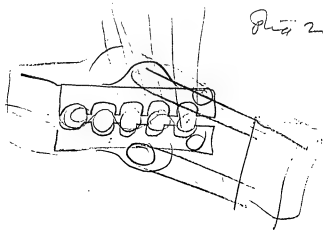
Series

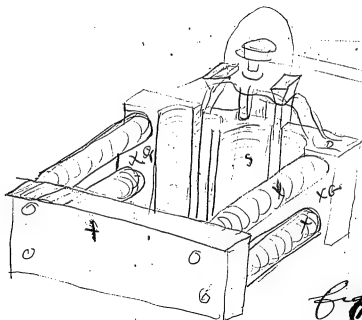
— February — 1884 —

THE EDISON ELECTRIC LIGHT CO.,
6 FIFTH AVENUE,

New York,

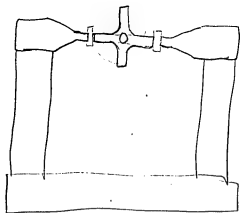
188



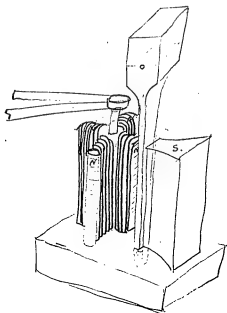


salt
 also water
 with pulp
 going down
 continuous
 & divide at
 bottom,

601

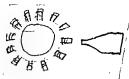
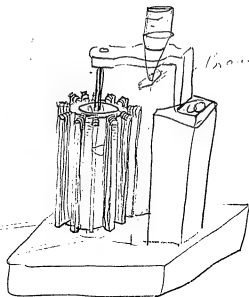


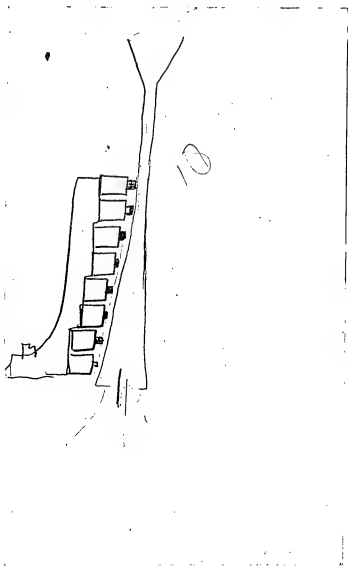
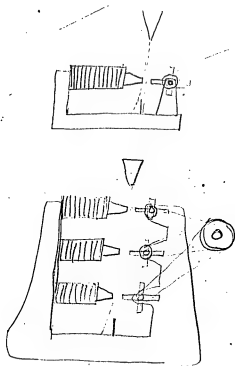
powerful fluid

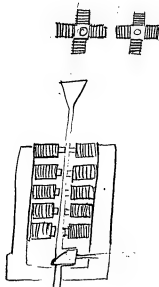
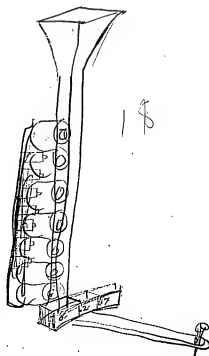


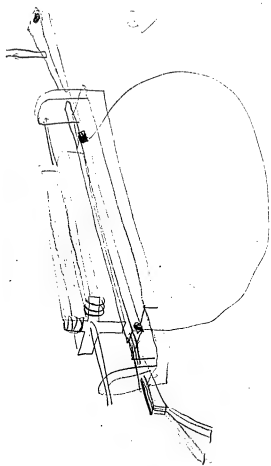
3

4-8-51 5 in. M.A.

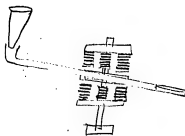
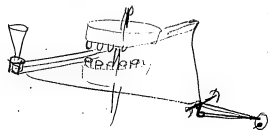


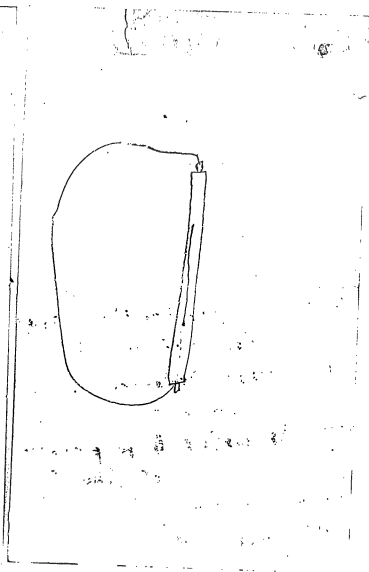
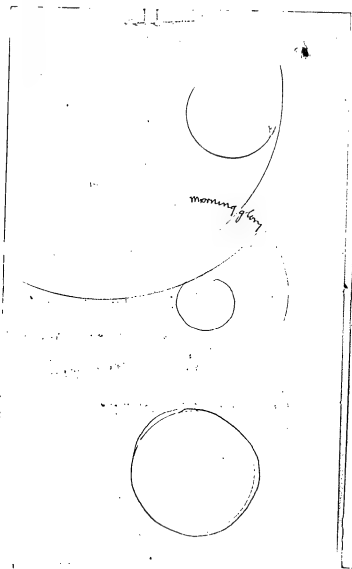






April 27th





New York, _____ 188

~~Request~~
Request.

The object of this invention is to separate gold and other metals in a metallic state from the ore gangue or non metallic substances

The invention consists in causing such gangue or ore to pass through a magnetic field of ~~force~~ ~~character~~ so that an electric current is thrown into the metallic particles by their cutting the lines of magnetic force and then causing the mutual attraction between such current in the metal and the field of force to carry the metal to a point or place of deposit different from the ore or non metallic gangue & thus produce a cheap & economical separation of the metals from the gangue in all these devices it ~~is sought~~ is sought to separate

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,

Form L. 1009-6-1

2

New York, _____ 188

magnetic bodies such as one of Nickel
iron etc.

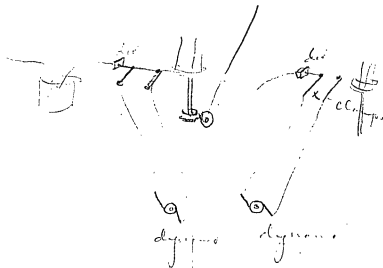
fig 1 Shows a powerful vibrator may
X with pole piece XG - S is a rotating
armature which may or may not be
coiled with wire to make it an
electromagnet. This cylinder or
armature is driven by a
belt there is a space



NEW YORK

May 21 1884

Dyn. The process described in the patent
for producing a drawing which is
the annealing of the wire drawing
is a continuous process.



See some drawing book
for the purpose of the die

about 6 inches of the wire passes between
contact rolls clamps or brushes. A continuous
quartz current passes through this section so
as to heat it as it passes to the annealing
is softening point, it may be heated between
every die or every other die. The softening of
the wire makes it easier to draw through the die
hence there is a saving of power & labor.

Doing is nearly enough to run the
department - besides by making the
process simpler - saves a great deal
of labor & increases the output of the
plant & also simplifies the
complicated annealing process
now in use - get a broad beam

Edison



THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

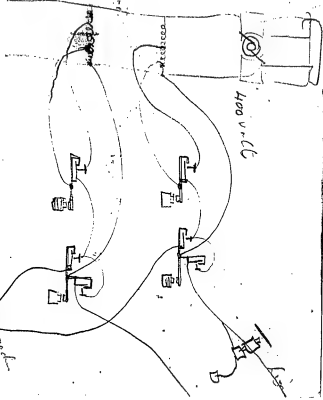
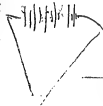
NEW YORK, May 23 1884

M. H. Force

TAE

J. F. O'H

May 23 1883 TAE



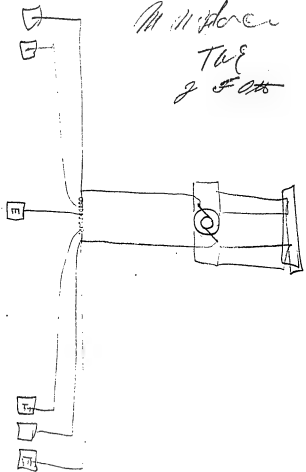
THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, May 23 1884

M. H. Force

TAE

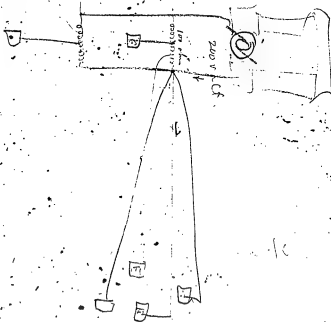
J. F. O'H



THOMAS A. EDISON,
No. 65 FIFTH AVENUE

NEW YORK, May 29 1884

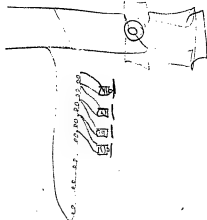
M. A. Roe
TAE
J. F. O'H



THOMAS A. EDISON,
No. 65 FIFTH AVENUE

NEW YORK, May 28 1884

M. A. Roe
TAE
J. F. O'H



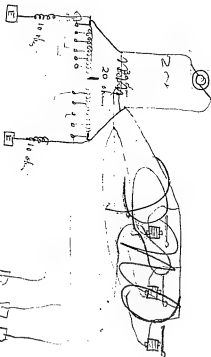
THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, *May 23* 188*4*

M. A. Bone

TUE

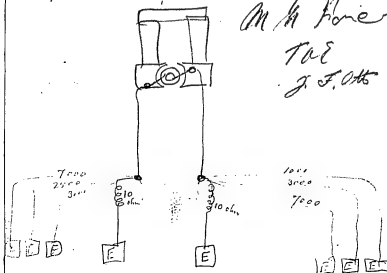
J. F. C. H.



THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, *May 28* 1884

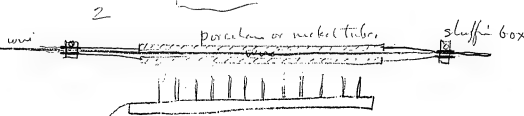
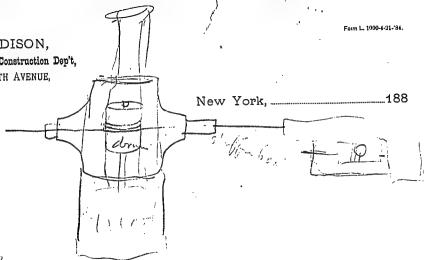
M. H. Howe
TAE
J. F. Ott



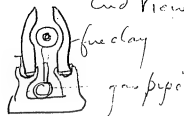
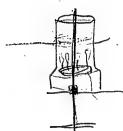
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,

Form L. 1000-4-01-24.

New York, _____ 188

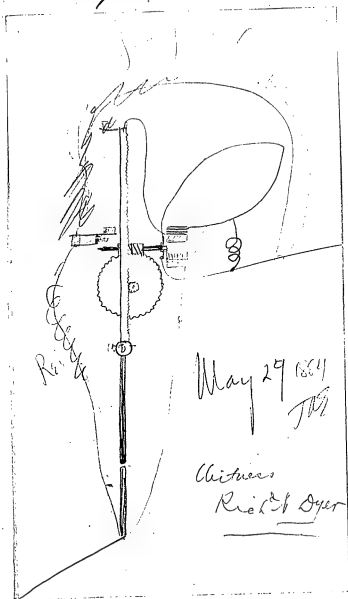


Dyer Patent May 24 1884



Tag

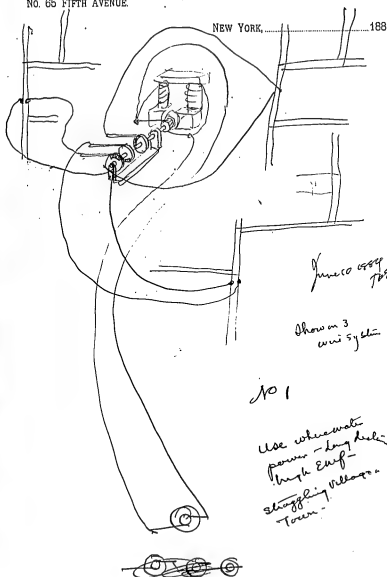
— May — 1884 —



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK,

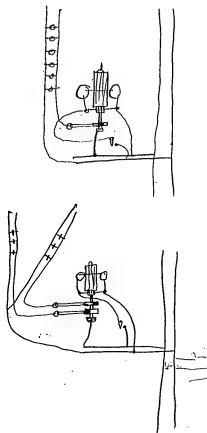
188



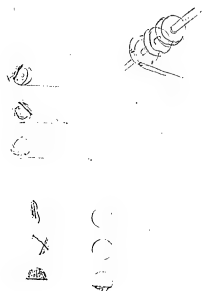
THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK,

188



June 10 1888
188

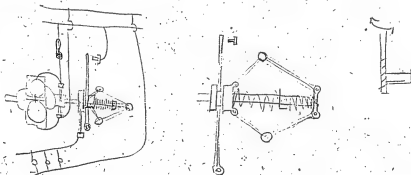


TERMS AND CONDITIONS.

To guard against mistakes on the lines of this Company, the sender of every message should order it repeated; that is, telegraphed back from the terminus of said lines to the Originating Office. For such repeating, the sender will be charged in addition one half the usual tolls of this Company, on that portion of its lines over which such message passes.

This Company will not assume any responsibility in respect to any message beyond the terminus of its own lines; and it is agreed between the sender of the following message and this Company, that said Company shall not be liable for mistakes in transmission or delivery, or for non-delivery to the next connecting Telegraph Company, of any unreported message, beyond the amount of that portion of the charge which may or shall accrue to this Company, out of the amount received from the sender for this and the other Companies by whose lines such message may pass to reach its destination; and that this Company shall not be liable for mistakes in the transmission or delivery, or for non-delivery to the next connecting Telegraph Company, of any repeated message, beyond fifty times the extra sum received by this Company from the sender for repeating such message over its own lines; and that this Company shall not be liable in any case for delays arising from interruption in the working of its lines, nor for errors in cipher or obscure messages. And this Company is hereby made the agent of the sender, without liability, to forward any message over the lines of any other Company necessary to reach its destination.

This Company is not to be liable for damages in any case where the claim is not presented in writing within sixty days after the sending of the message.



Blank No. 11.

CABLE MESSAGES.

The Western Union Telegraph Company

All messages destined for points beyond the United States, via the Atlantic Cable and the Cables to Cuba, which are received by this Company for transmission, will be so received and sent forward over the lines to the terminus thereof, and there delivered to the next connecting Telegraph Company, only on the terms and conditions printed on the back hereof.

A. D. BREWSTER, Sec'y.

NORTH GREEN, President.

188

Send the following Message, subject to terms and conditions printed on the back hereof, which are agreed to.

To

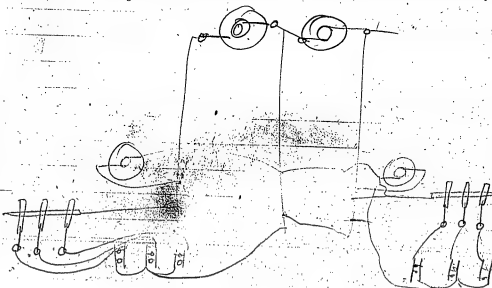


TERMS AND CONDITIONS.

To guard against mistakes on the lines of this Company, the sender of every message should order it repeated; that is, telegraphed back from the terminus of said lines to the Originating Office. For such repeating, the sender will be charged in addition one half the usual tolls of this Company, on that portion of its lines over which such message passes.

This Company will not assume any responsibility in respect to any message beyond the terminus of its own lines; and it is agreed between the sender of the following message and this Company, that said Company shall not be liable for mistakes or delays in transmission or delivery, or for non-delivery to the next connecting Telegraph Company, of any unrepeated message, beyond the amount of that portion of the charge which may or shall accrue to this Company, out of the amount received from the sender for this and the other Companies by whose lines such message may pass to reach its destination; and that this Company shall not be liable for mistakes in the transmission or delivery, or for non-delivery to the next connecting Telegraph Company, of any repeated message, beyond fifty times the extra sum received by this Company from the sender for repeating such message over its own lines; and that this Company shall not be liable in any case for delays arising from interruption in the working of its lines, nor for errors in cipher or obscure messages. And this Company is hereby made the agent of the sender, without liability, to forward any message over the lines of any other Company necessary to reach its destination.

This Company is not to be liable for damages in any case where the claim is not presented in writing within sixty days after the sending of the message.



No. 11.

CABLE MESSAGES

The Western Union Telegraph Company

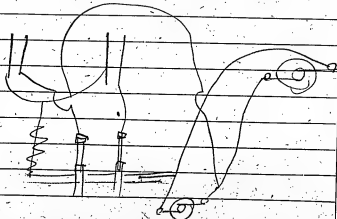
All messages destined for points beyond the United States, via the Atlantic Cables and the Cables to Cuba, which are received by this Company for transmission, will be so received and sent forward over the lines to the terminus thereof, and there delivered to the next connecting Telegraph Company, only on the terms and conditions printed on the back hereof.

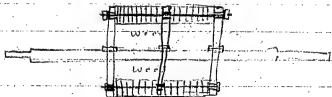
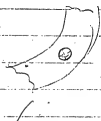
A. H. BREWSTER, Sec'y.

NORTH GREEN, President.

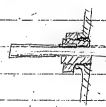
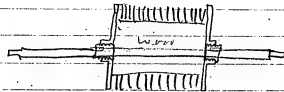
Send the following Message, subject to terms and conditions printed on the back hereof, which are agreed to.

To

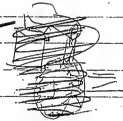




2



Nut used
Screw



✓
Pick.

Sept 11 1887, 922

Think I better take out a
pencil on this.

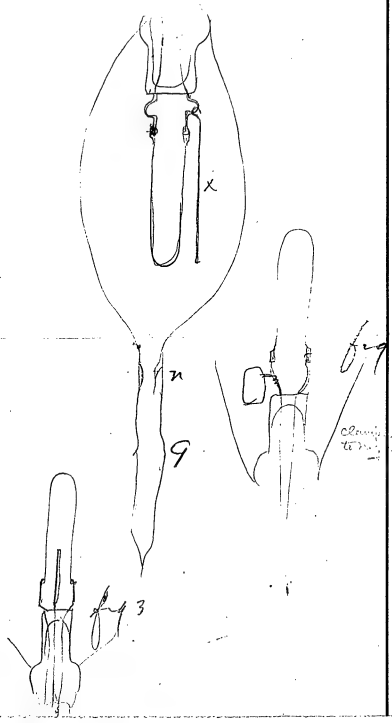


fig 2
Cleaning to No. 1
Be a little
more careful
in the
drawing

Nov/Sept 11 1884
Har

The object of this invention is to prevent the springing of an electric arc across the terminals of the filament of Carbon within the Vacuum Chamber during the process of manufacture.

The invention consists of increasing the area of the positive metallic terminal ^{with the exception of the Carbon} while the lamp is being manipulated to drive out the dissolved gases, by passing the current through it - and afterwards removing the increased area from the chamber before joining the lamp.

The terminal of the lamp may be of any desired shape that will permit a metallic ~~contact~~ or Carbon wire to be attached or detached easily from it.

X shows a piece of platinum wire - which or which is inserted into the tube of the lamp is sealed at N - fig 2 ~~shows~~ shows the increased area permanently attached to the positive lamp.

— September 1884 —

2

While in fig 3 shows the increased area connected to a 3rd wire passing outside of the chamber electrical connection being made outside the chamber, ~~sum~~ with the positive pole, ~~this~~ & disconnected from the lamp is provided. That shown in fig 1 is preferable. No 2 which is present, arising from using when in use were as only the electrical carrier on which is ^{connected} ~~connected~~ by connecting the large area pole with the neg. side when burning in practice of course the area of bath.

Claim
Pole might be increased. But this does no good only the pole on which the blue halo appears is it requisite to increase the area.

Claim. Increased area to positive pole upon outside of chamber. Halo appears during manipulation & subsequently disappearing.

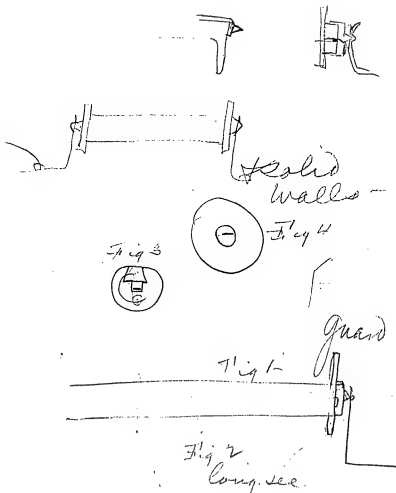
Removing area from vac —

Removing area by disconnecting outside vac.
Changing area after life to neg. side of chamber.

THOMAS A. EDISON,
NO. 65, FIFTH AVENUE.

Sketches made in
NEW YORK, 1884

208



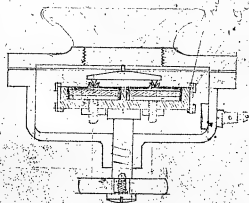


Keep up

Laboratory of N. A. Edison

Dec. 6 - 84

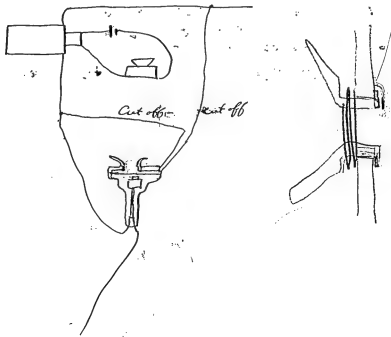
J. S. O'H.



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK

Dec 11 1884



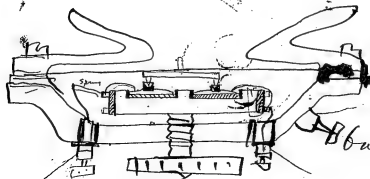
Doc = New app. = You know that in transmitting
it necessary to have the secondary (10) the induction
coil in circuit but not essential in Receiving
The induction coil by its Extra current knocks the
tapping down nearly $\frac{1}{2}$ now if it could be
cut out when receiving it would be good
thing. I arrange the mouth or rather ear piece
of the receiver loose & have an extra movement given
it when the party presses it harder on the ear
the ear piece will go inward & close a circuit

THOMAS A. EDISON,
NO 65 FIFTH AVENUE.

NEW YORK

Dec 13

1884



Base connection



Dyer - New Transmitter.

Button can be put in multiple arc,
or in series - Confirmed drawing to
Eng -

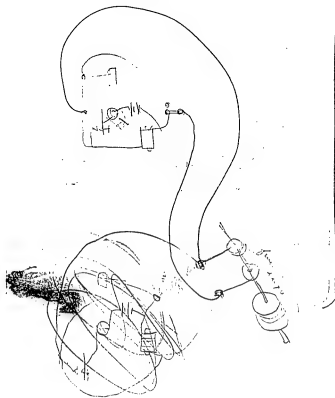
Technical Scrapbook, Cat. 1151

This scrapbook covers the period January 1885-December 1886. There is also one document from 1889. The entries are by Edison. Included are numerous notes and drawings relating to lamps, along with occasional material about other parts of the electric lighting system, such as generators, meters, and regulators. There are also many notes and drawings dealing with telegraphy, including the phonoplex, railway telegraph, quadruplex, sextuplex, and air or balloon telegraph. There is also a description of a method for producing artificial mother of pearl. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney. The name of Edward C. Rowland, Edison's patent draftsman, appears as a witness on many of the documents. The case number of Edison's patent application has been written on some of the items.

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

CABLE ADDRESS—EDISON, NEW YORK.

NEW YORK, _____ 188

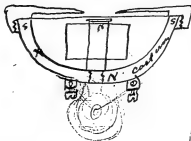


made sketches of the
H Saturday Jun 2nd 1865
E. B.

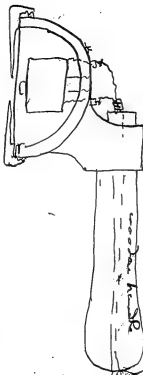
Wm. H. DRIVER, Treasurer.
Just think of us as a team
THE AMERICAN BELL TELEPHONE CO.

P. O. DRAWER 3

Dear Mother
 Boston. 1881
 In reply to yours
 I am very kindly
 Yours
 A. C.



X Cast iron hardening
of magnetized -
or Cast steel - or
dropped steel =



Dyer = Gellman) has got
out best receiver I ever saw
but the Co's main patent
man says nothing patentable
now I think there is
so please draw up a brief
specification & claim & send on to
Gellman - There's no
moving in it for you directly
but it will help you

9/15/1941 -
The telephone down a ~~couple~~ 18 min or so after the 2:30
approx. time, and possibly many minutes before the
next full connection after. Each time the other side is
down some minutes after the last connection. It is
prob. is an active proxy to the center of the distribution.

1st rise elevation
2nd section line
3rd line

Dec 54

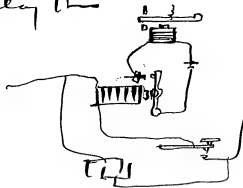
10/10/54

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, 188

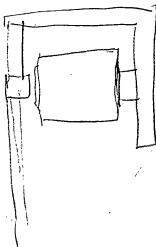
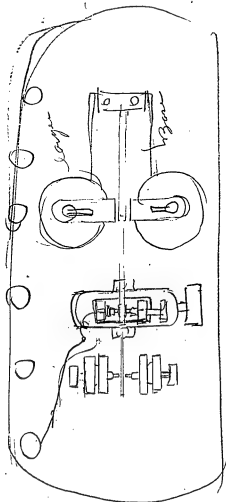
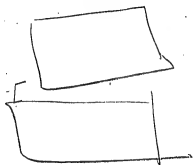
Recd

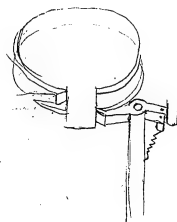
On regular morse
set in drawing you show
2 relay one of which you
call a sounder it is customary
to make sounder different from
Relay the

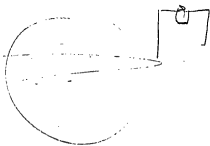
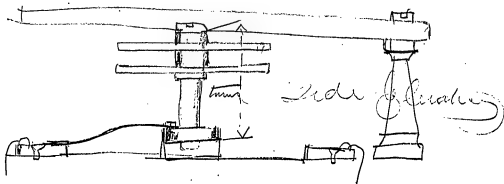
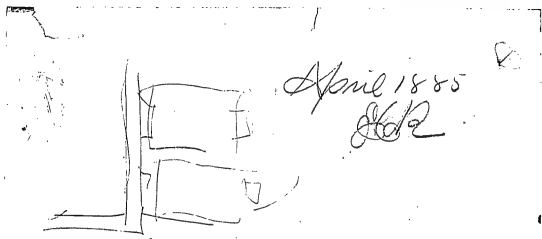


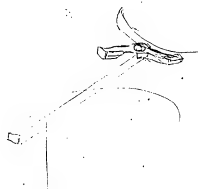
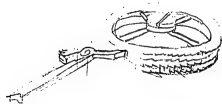
1/10 P
April 1885
EGR

April 1885
8/2









THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York

188

Syr-

Have I a patent on an ordinary governor
(standing) made to lift a lever up & down
according to the speed which lever simultaneously
raises or depresses several levers or springs
provided with contact points all in series
so the current is broken in several places
simultaneously to prevent spark and these points
put right in a main circuit the governor being
run by a motor for regulating the motor speed
by cutting off the entire current at intervals
if not I know I have it in some regulators but
never I used it to regulate motors. if not
a good claim can be obtained upon a
patent.

Down at Meads a long time ago old
made dies & new dies & bamboo etc through
round dies to make even cylindrical fibers
we made only a few lamps - I now
want to take the subject up again -
Can I apply for a patent and get claims
for a cutting die - not a drawing die but
one that cuts so that fibers or woody matter

the description in
note of patent must be
clear

188



New York



THOMAS A. EDISON
NO. 85 FIFTH AVENUE

[Faint, mostly illegible handwritten text, possibly a letter or memorandum.]

[Handwritten text, appearing to be a list or notes, with some words like 'to', 'the', 'and' visible.]

Apr 11 86

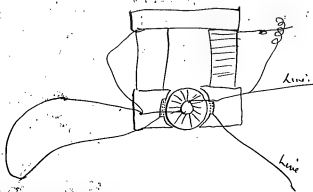
THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1200-9-13-76.

New York, 188

(2)

Can be cut to shape — whether the D's
are split or solid (10) poles —



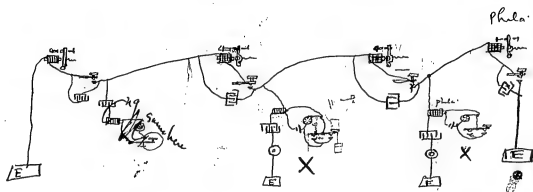
See Appendix


Patent this — part of the face of the field
is cut away and large wire wound parallel
with the armature wire & with a carrying
Capacity Equal to the armature and so
arranged as to resistance current and turns
of wire that its magnetizing effect ^{on the armature} is
Equal to the wire on the armature.

The Current from the armature is passed
through this fixed coil in such a
direction that it magnetizes the armature
just the opposite to the magnetization
due to the wire on the armature. — this
causes the armature to ~~be~~ have no magnet

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK.....188

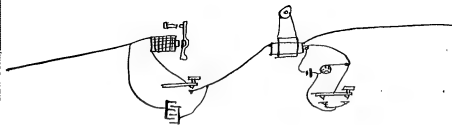


one X at each station, 
at terminals only Condenser round Key
at all intermediate station Condensers around
Key & Relay —

Type No 1

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK.....188



217/482

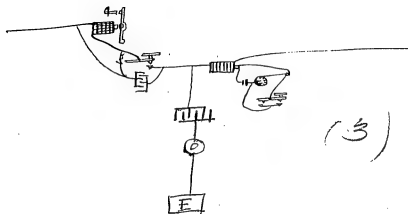
April 27th, 1885

217/4

April 27th, 1885

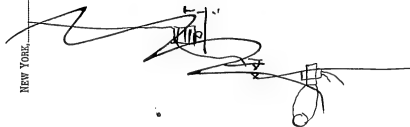
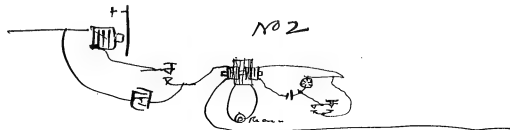
THOMAS A. EDISON,
No. 65 FIFTH AVENUE,

NEW YORK, 188



THOMAS A. EDISON,
No. 65 FIFTH AVENUE,

NEW YORK, 188



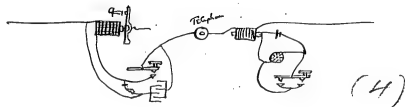
THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK, _____ 188

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

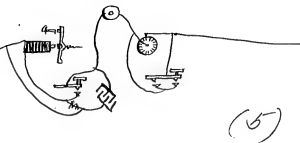
NEW YORK, _____ 188

Type 2



Condenser may be arranged in any other way preferred -

Type 3



THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

11

NEW YORK, _____ 188

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

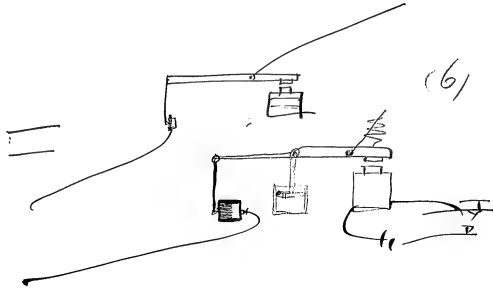
NEW YORK, _____ 188

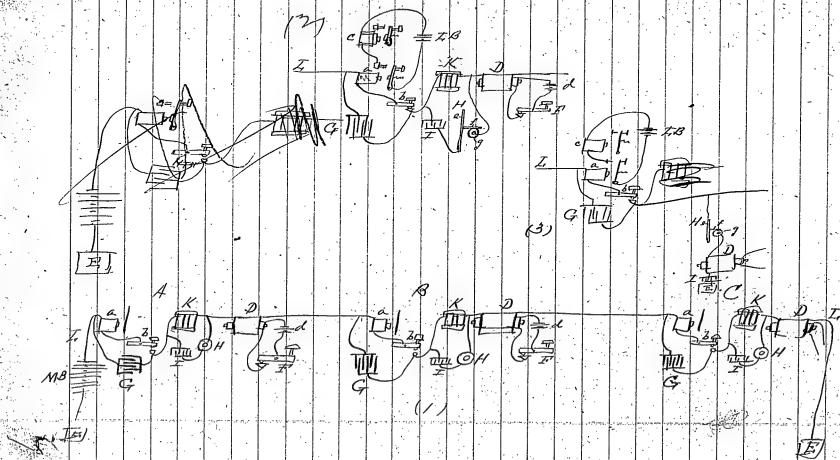
(7)



Very low
intensity
of condenser
but no good.
Bryant
Electric -
Mortograph.

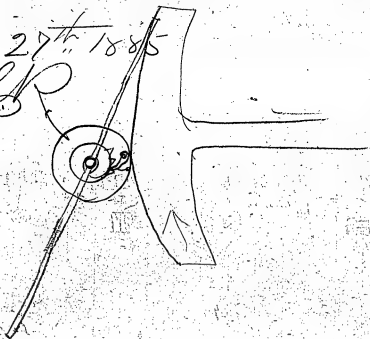
Dr. Chapman's
Condenser has effect to
project - no neutralization





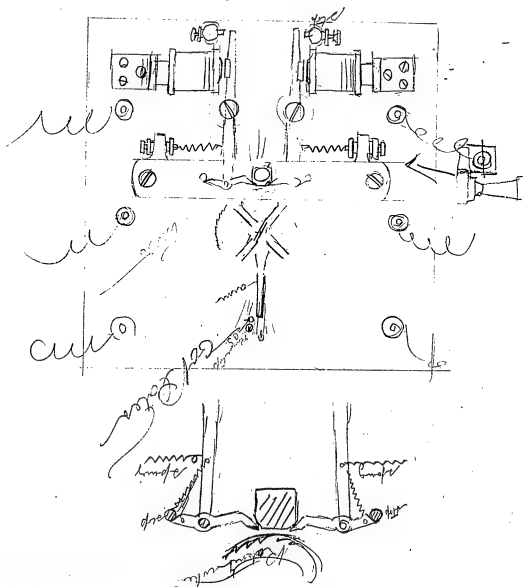
April 27th 1885

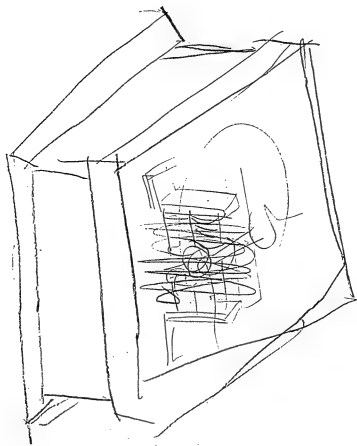
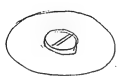
ELP



11

April 1885
E.R.





BERGMANN & CO.
ELECTRICAL WORKS,
Patentees and authorized Manufacturers of
EDISON ELECTRIC LIGHT FIXTURES AND APPLIANCES,
COMBINATION (Electric Light and Gas) FIXTURES A SPECIALTY.
DESIGNS AND ESTIMATES FURNISHED ON APPLICATION.
The Most Complete Facilities for all kinds of Electrical Work.
292, 294, 296 AND 298 AVENUE B,

New York, April 29 1885

Dick -

Send you diagram for an other patent etc on the
line of the Quadruplex: one message is sent by reversing
the current the other by increasing and decreasing current.
To use this principle in way wires I sketch a
certain things = Say ~~there~~ no reverse men are
working & Keys X X all along the line are open
I have no battery from these apparatus = on the
line there is constantly connected say 16 cells
M. 1/2 of these may be at one terminal & 1/2 at
other or all together anywhere in line, this
current is used to signal or common relay
by increase & decrease by means of key & resistance
The battery S S' is exactly twice as many cells
as M but always thrown to line in the opposite
direction to M hence of the 32 cells 16
neutralize the 16 of the main battery put
16 on line but in opposite direction thus
giving a reversal working polarized relay
but not affecting the common relay as
there is always the same ~~same~~ amount of
current = You know that in the Quad
in all cases the common relay at the
moment of reversal loses its magnetism

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Patent and authorized Manufacturers of
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The Most Complete Facilities for all kinds of Electrical Work.

292, 294, 296 AND 298 AVENUE B,

New York,
(2)

1888

for an instant and then causes the relay lever
to leave its front point for an instant then
restating signal ~~to~~ it is very quick
but still it is not able to operate this in the
'Double duplex' The back point is used to close the
sounder here at the moment of reversal of
the lever jumps back nearly striking the
back point & does so frequently strikes & gives
a false sound. To reduce this defect
to the minimum I have struck very good
thing I place a large magnet in
connection with the regular magnet & shunt
the latter with it by placing a Condenser
of large Capacity in circuit with it
The Resistance of this magnet is 2 or 3000
ohms or more while the regular magnet
is only ordinary Relay resistance 150 ohms.
at the moment of reversal a powerful
wave due to the discharge & recharge
of the Condenser takes place and this
wave has its greatest power at the exact
moment the ordinary magnet has no magnetism
the wave charges the big mag N & holds it for

BERGMANN & CO.
ELECTRICAL WORKS,
Printers and electrical Manufacturers of
EDISON ELECTRIC LIGHT FIXTURES AND APPLIANCES,
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DESIGNS AND ESTIMATES FURNISHED ON APPLICATION.
The Most Complete Facilities for all kinds of Electrical Work.
292, 294, 296 AND 298 AVENUE B,

New York,

188

3

an instant - this wave is momentary. thus you see at the moment when the regular magnet has no magnetism it has which ceases when the commutator magnet has -

Claim this -

also number of stations on one line.
provided with Commutator & polarized -

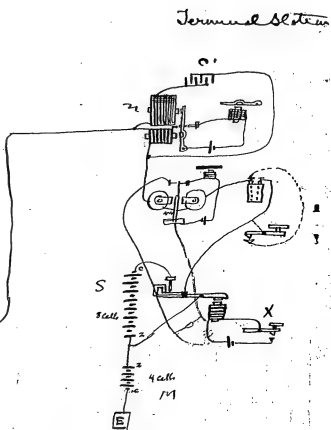
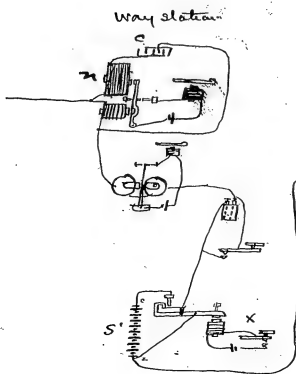
Commuter throwing in out Res to work Commutator

The manner of reversing the direction of the current on line at a number of stations

This method of reversing for use in telegraphy.

This way station system is entirely original
& you get some very broad claims -

The only defect is that while the Commutator is open it can interrupt the polarized wave must only close or interrupt while the sender is open this is no objection as they can hesitate every 10 words or so - Edison



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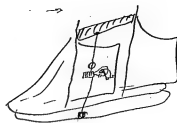
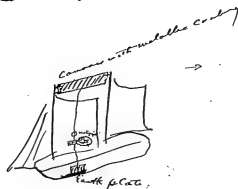
The Most Complete Facilities for all kinds of Electrical Work.

292, 294, 296 AND 298 AVENUE B,

New York, May 6 1884
188

Dyer -

Take out patent for new method
Telegraphing without wires especially
available for communicating between
ships at sea across Rivers from
Island to Island.



30 to 50 miles -
as long as curvature of
Earth is taken in consideration



big drum coated
with metal raised
+ lowered by rope + block

Prooelaine



water

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New York,

188

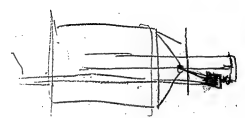
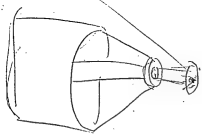
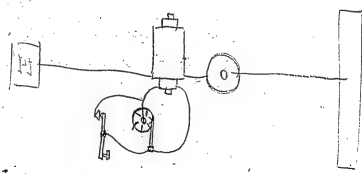
You can telgraph from ships 24 miles apart
when mcsalleys ship is 100 feet from sea
level & then be 50 feet over the line
of Curvature of the Earth.



Suppose two ships were 24 miles apart they could
telgraph & if there was another ship 24 miles
further the messages could be repeated
from the 1st to last ship 48 miles apart & so
on if in the line between Liverpool & New York
Communications also be exchanged repeated from
ship to ship 1/2 way across ocean - at
sea its very quiet & one only has to contend
with the absorption due to the sea, & not to
trees, houses, hills etc.

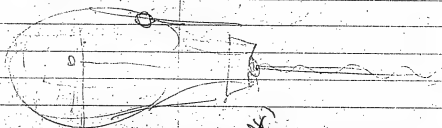
Σ

BRIDGMAN & CO.
STATIONERY WORKS



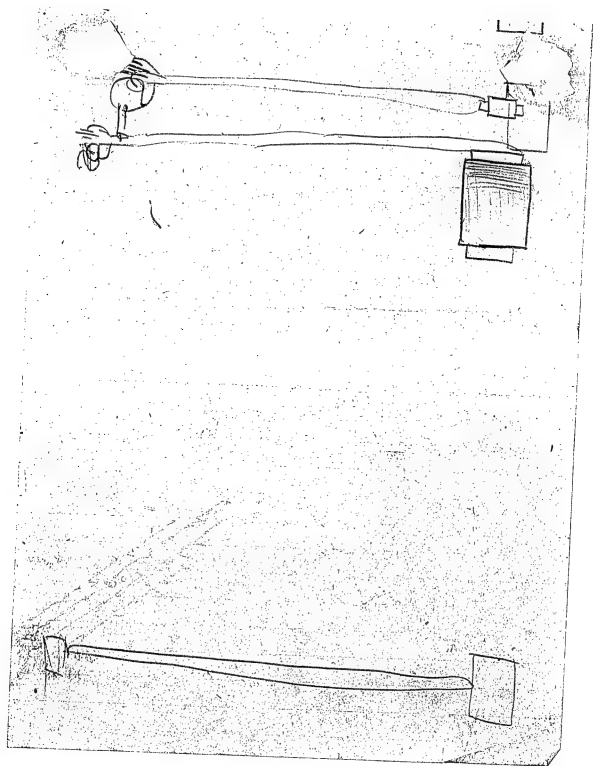
154

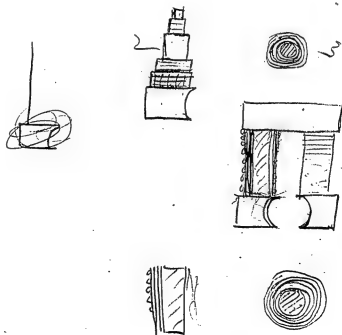
Paving machine
May 12 1885



154

Look at Ray machine
Inventor for Mr. Brown
no railroad case
See machine & machine
154



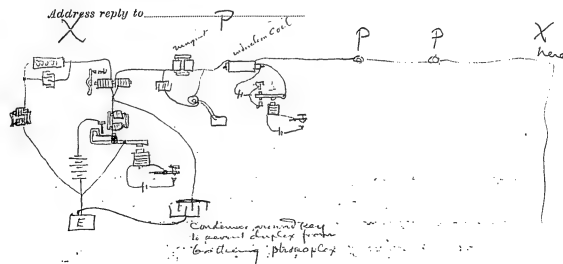


Drawing made
May 14th 1975
EDR

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE.
NEW YORK.

Form M.
W. D. RICH,
SUPT OF CONSTRUCTION.

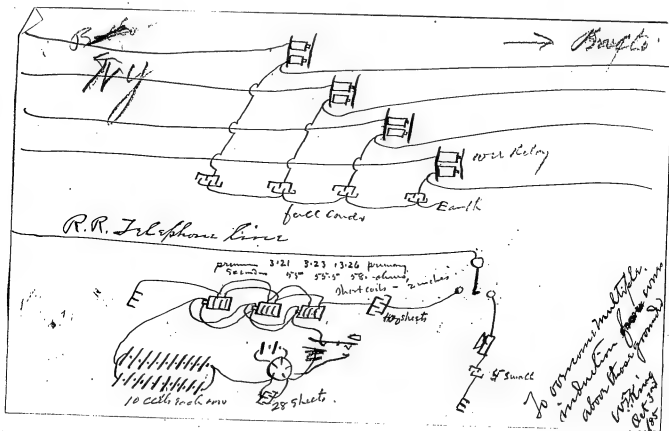
188

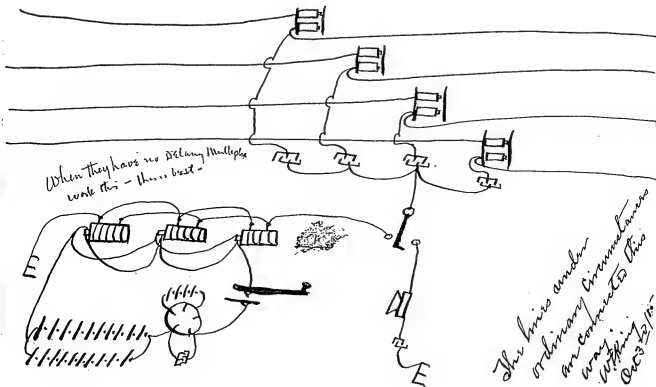


Dyer - This is to take a Duplex wire and at intermediate + terminal add several phonoplex apparatus so we can make a way out of a Duplex patent this in US + England

Germany, France —

Sep 18th 1888
E.D.R.





THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

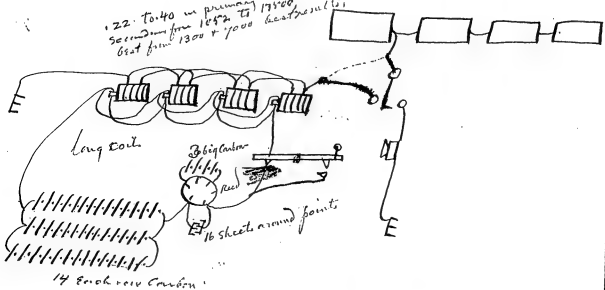
NEW YORK,

188

*I immediately
carried this away
E.T.*

Edwin S. Taylor

22 to 40 in primary
 Second from 1052 to 17500
 Best from 1300 to 7000 heat results



4 carbon in gas -
 fuller bottle by in bottom

The Train
 working
 Oct 3rd/88

THOMAS A. EDISON.
No. 65 FIFTH AVENUE.


W. D. RICH,
SUPT. OF CONSTRUCTION.

Address reply to _____

188

Dick -

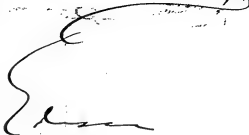
In view of that ~~part~~

 ~~is~~ to you

Change the diagram thus



per a center
draft
+ little weight



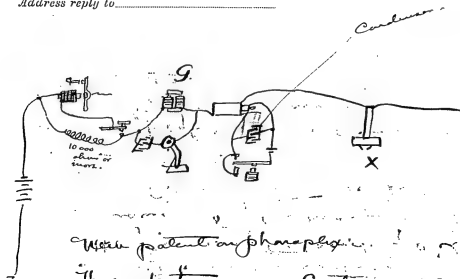
THOMAS A. EDISON,

Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

Form M.
W. D. RICH,
SUPT OF CONSTRUCTION.

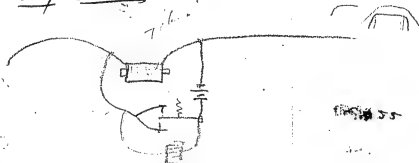
Oct 22 1883

Address reply to



New patent alphaphy.

The new features are a Condenser across
the primary of the sending coil —
2nd using a Regular Magnetic telephane
X right in circuit without the magnet
G —
3rd a High resistance around the
Relay and Key, arranged in the
way shown



1900

1901

1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

THOMAS A. EDISON,
Central Station, Construction Dept.,
No. 65 FIFTH AVENUE,
NEW YORK.

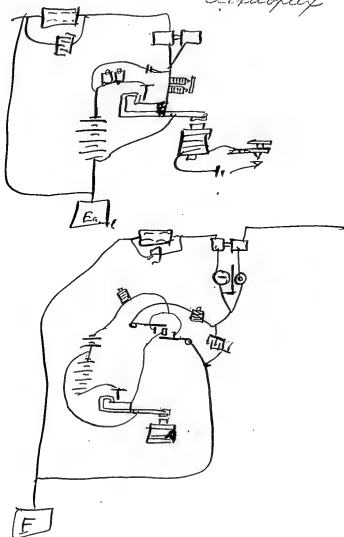
Form N.
W. D. RICH,
SUPT OF CONSTRUCTION.

Address reply to _____

Oct 21 1885

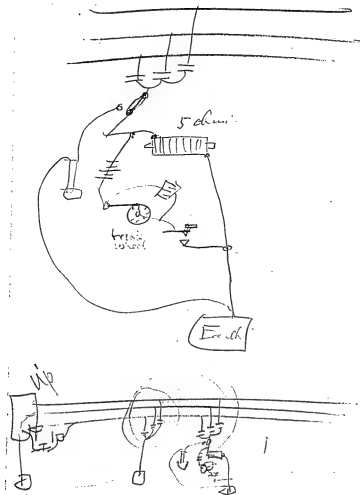
*John S. M.
M. N. Ford*

Exdoflex

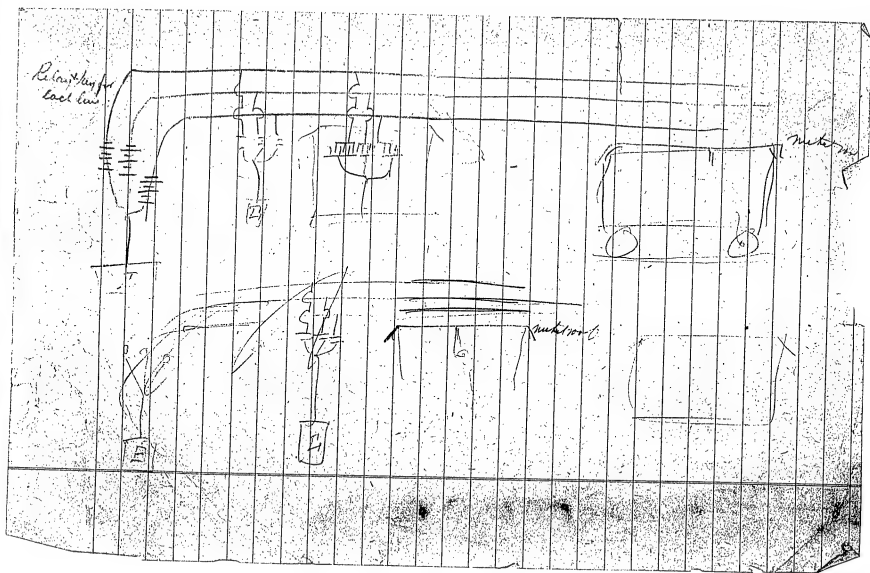


THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, _____ 188



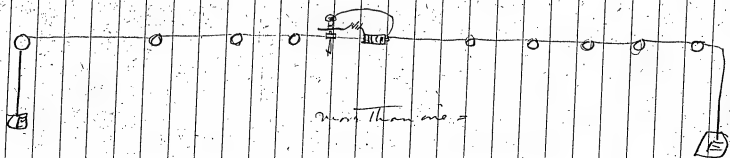
Received this
Beth Hec 11th, 1885
E. H.



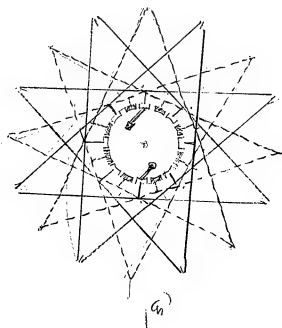
Saw Skeleto

Dec 11/85

EB



Ed Bowler
Nov 24th 1885



RICHARD H. DITEL

CHAS. ALBERT
"VERMONT, NEW YORK"

H. W. SEELY

DYER & SEELY,
ATTORNEYS AT LAW AND SOLICITORS OF PATENTS,
No. 65 FIFTH AVENUE.

New York, 188

Dec 22nd 1885
E. L. B.

E. T. Gilliland,
Boston.

Jan'y 21 1886

Dyer

Take out following patent,

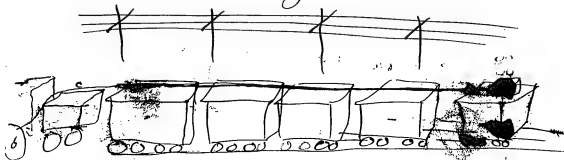
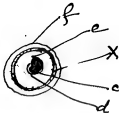


Fig 2



In the exposure I have a reel on which I coil a cord about $\frac{1}{2}$ inch diameter. The cord contains either one or two conductors. There are several hundred feet of it sufficient to reach the whole length of the longest

E. T. Gilliland,
Boston.

freight train, it is to be used as one plate
of the condenser on the RR trolley - ^{perhaps}
the RR trolley wire from the other plate.

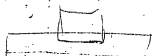
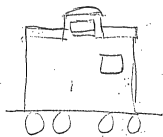
The cord shown in fig 2 consists 1st of the
small wire c insulated by d - then e is
rope; over this is wound spirally copper
wire making a flexible cord - over this
again is tape & then the whole is braided
with hemp -



The center wire runs to locomotive to get a good
ground ~~under~~ but the trolley wheels may be
fixed to make a good ground & then the
center wire need not be used.

We could use a flat band —
lead covered wire etc

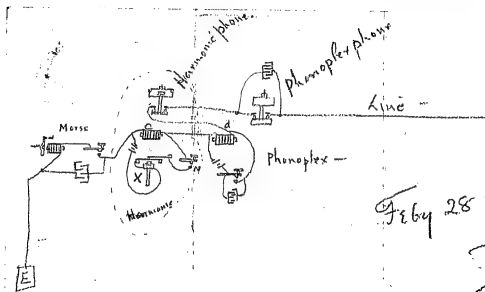
We have as estimated that it is length
of conductor is what is wanted instead
of 2000 feet of suffian or two or 3 cars.
75-feet are 30 or 40 is better, greater



length parallel with the telegraph wires
is the ticket - we can possibly use a
~~telegraph~~ telephone instead of Morse or long
freight trains I think you might mention
this,

get strong claim - take patent in
my name - Edison

PB Chung, to RR Tel & Tel Co



Feb 28 1886

TAE

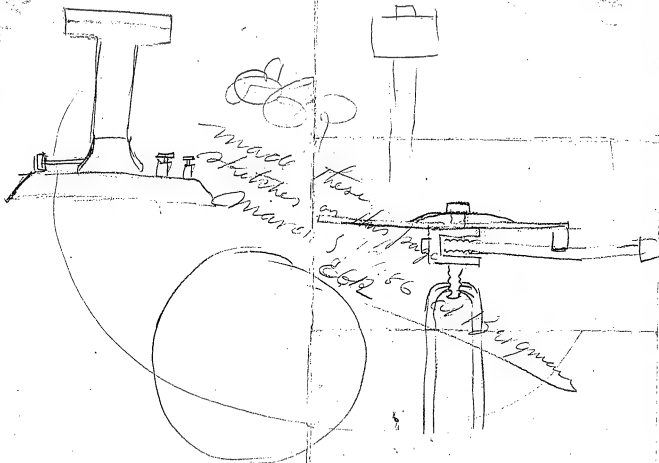
(Triphonoplex)

How about it

Dyer -

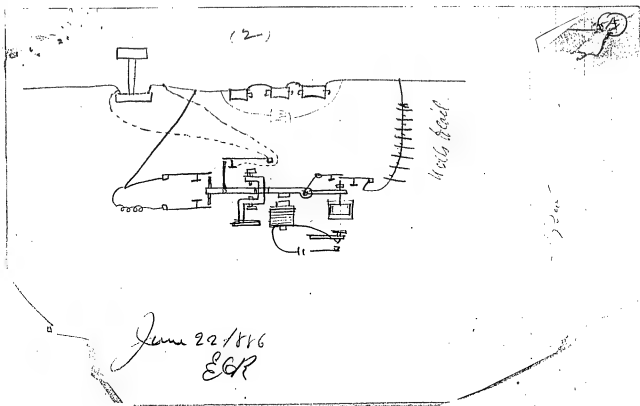
Took out patent on this. In addition to regular phonoplex I add another receiving phone just the same as the phonoplex phone except it has a light weight and has an upward limiting nut so the diaphragm can't throw it up more than $\frac{1}{16}$ inch - This weight responds to the rapid vibrations thrown on the wire by a local self make & break like phone diaphragm X. C is a 7 ohm primary coil - when key N is closed the diaphragm vibrates and its heavy self makes & breaks, thus causes the coil to send waves - The phonoplex phone is prevented from responding by being shunted with a small condenser which nearly escapes out the rapid occurring but weak vibrations of the harmonic & in addition is provided with so heavy a weight that while the strong phonoplex waves lift it it's single harmonic wave has the strength. Thus I get 3 messages over a wire.

TAE Edison



June 22nd 1886
E. H. P.

— June 1886 —

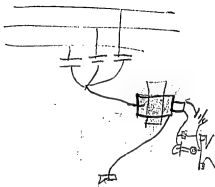
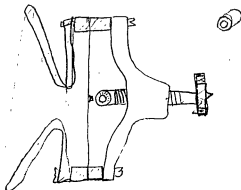


RICHARD H. DYER,
H. W. SEELY.

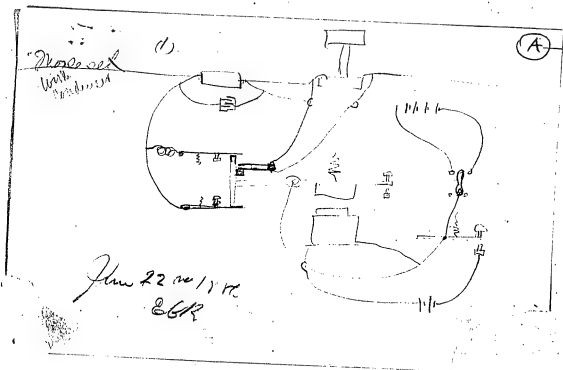
CABLE ADDRESS,
"VERNERIS, NEW YORK."

DYER & SEELY,
PATENTS,
No. 40 WALL STREET,
NEW YORK, N. Y.

188



June 22nd 1886
E. C. C.



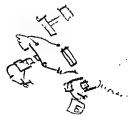
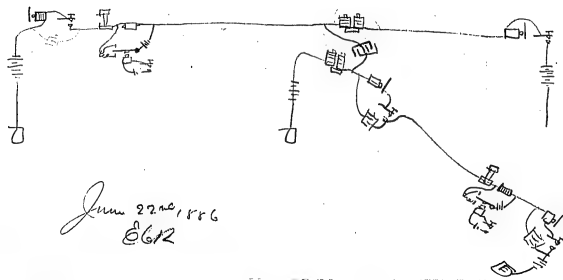
1. (1)



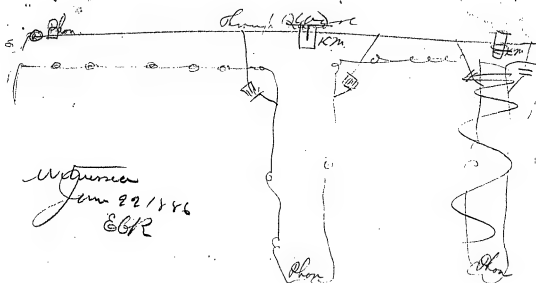
⑬



June 22nd 1876
E.B.R.

 (r) 

(3)

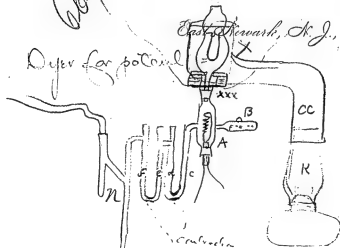


W. J. J. J.
Jan 22/1886
E. G. R.

THE EDISON LAMP CO.,

East Newark, N. J., July 7 1886

Dyer for pot. carb.



Process of a Carb.

Soak patent
which we can divide
into other portions to be measured

The object of this invention is to suppress the Mercury Vapor in the Lamp and to get rid of the vapor of Water.
 n is the ordinary Mercury pump. f is a Tube filled with clean lumps of Antimony or Bismuth.
 e is filled with crystals of Iodine. d & c are filled with Antimony or Bismuth. A is a chamber containing an iron spiral which can be brought to a red heat by the current & regulated by a Rheostat X to the Lamp to be exhausted.

THE EDISON LAMP CO.,

2

East Newark, N. J., 188.....

B is a tube containing phosphoric anhydride or other absorber of water vapor. K is a lamp provided with a chimney CC which surrounds & serves to heat the lamp while exhausting. XXX is an Electro Magnet which is energized when the filament is first heated. The attraction between the current in the filament & the lines of force of the magnet serving to pull & attract the filament downwards as to a central point thus keeping it straight. The filament being once set at high incandescence will not afterwards change.

The lamp heating the bulb causes all the gases & water vapor to be thrown off the surface of the glass & is absorbed by the phosphoric anhydride or decomposed by the heated iron spiral leaving

Hydrogen which by its great mobility is soon taken out by the pump. The mercury vapor cannot pass to the lamp

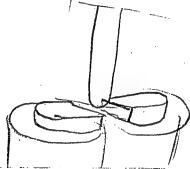
THE EDISON LAMP CO.,

East Newark, N. J., 188

3

as it combines with the iodine to make a solid iodide of the metal. The iodine vapor cannot pass to the pump or lamp as it combines with the Sulphur & Boron to form solid iodides of these metals. Instead of the unsual other metals may be used that decompose water at a high temperature & alloys.

Instead of heating with the current, powdered metal can be placed in a tube connected with the vacuum & brought to a red heat by outside heat as a flame etc. The Magnet for brightening should be arranged thus

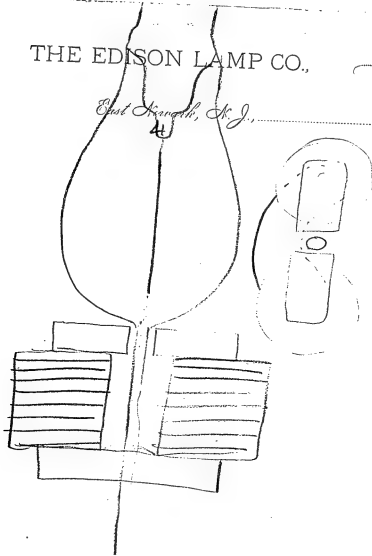


4

THE EDISON LAMP CO.,

East Orange, N. J.,

188

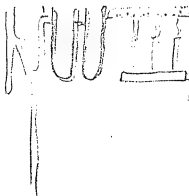


Instead of having the spiral in the pump each lamp
 may be provided with an iron wire connected across
 the clamp & ~~passing~~ ^{passing} ~~the~~ ^{the} carbon filament, as the iron wire is
 brought to a ~~point~~ ^{point} ~~with a~~ ^{with a} ~~carbon filament~~ ^{carbon filament}
 2. the iron wire ~~will~~ ^{will} heat the filament. The wire when a
 vacuum is obtained is brought to use as ~~before~~ ^{before} afterwards the
 wire is melted & by means of a magnet drawn ~~down~~ ^{down} ~~out~~ ^{out} of the way

THE EDISON LAMP CO.,

East Newark, N. J.,

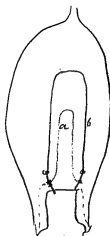
1888



heating metal from
outside of glass instead
of open filament,

T. A. Edison.

fig 4



a is the new wire

b the regular filament of Edison

T. A. S.

Petroleum
Lamp Co—

Soak patent—

Highlylign Park
July 1 1886

To effectively absorb all the water
within the bulb of the lamp and
to cause water to be formed
so that it may be absorbed also
as to get rid of the Oxygen
a object of the patent,

~~small~~ after the lamp has
had all the water taken from
it by passing pure dry
Hydrogen through it from
a source of Hydrogen
all the air driven out by
displacement due to the
inrush of the Hydrogen, a
small pellet of ~~an~~ water

2

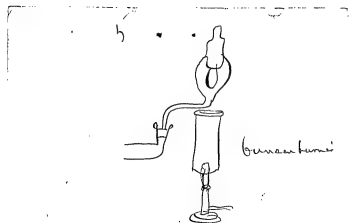
absorbing substance such as
phosphoric anhydride is put
within the lamp and while it is
full of Hydrogen put on the
pump and exhausted, and
Oxygen present combines with
the Hydrogen by the action of
the incandescent filament &
forms water at a low temperature
& this is absorbed by the
pellet of pieces of phosphoric
anhydride, which remains
in the lamp after it is soaked
off and ready for market,
it also absorbs any water or
water that might have been
in the globe. A piece of
phosphorus may be used instead
of the phosphoric anhydride &
this is ignited while Oxygen is
still in the globe & before the
Hydrogen has been passed the
phosphorus burns to phosphoric anhydride

it should be put in a small receptacle
so that in burning the white cloud
of phosphine will not
rush upward & coat the sides
of the lamp. - Chloride of
Calcium & other absorbent
may be used but phosphoric anhydride
& I think is preferable. The
pellet when put in the lamp
must be made to fall to the
bottom of the lamp where it
will adhere and where it
will remain during the use
of the lamp. ^{also} phosphoric
anhydride gives off a slight
amount of water when strongly
heated. ~~I used at first~~
~~a glass~~

4

Wants a strong claim on this.
The use of ^{hydrogen} in the
lamp as the gas to start
with to exhaust and ~~use~~ a
powerful water absorbent
either in the pump or allowed
to remain permanently in the
lamp is used, the latter preferable.
Claim heating the filament
at first to lower its condensation
than it is to be burned at to
cause the Oxygen to combine
with the Hydrogen to form
water. -

P.S. I forgot to mention that
while the lamp is being exhausted
it is heated continuously by
^{the fuel} immersion in hot oil bath
or from heat coming from a chimney
or flue. Thus -



Make a claim for this also for
 set in combination with the B.
 in lamp & the dryer in lamp
 or pump —

Edison

Patent No. 2

Comp Co account Hewitt Park

Soak patent

July 11 1888

Dye -

668

Take out patent on ~~the~~ a sprayer
pump same as we use except
the use of Sulphuric acid instead
of mercury to get the vacuum
The fall tube is about twenty feet
long we use lead off Hard rubber
fittings & mechanical pumps
to handle it - The Sulphuric is
very strong, get broad claim,
object is to dispense with mercury
as its expensive and dangerous
while the men can protect themselves
by mica masks for accidents, they
start from the wooden mercury
bodies it gets the vacuum free of
mercury vapor ~~on~~ The ~~two~~ very little
vapor from Sulphuric acid may be
absorbed by a substance which will
combine with it such as an oxide of

a metals through which the
vapors must pass for getting
to pump - it ^{also} acts also as a
drying agent though I prefer
to still use the phosphoric
anhydride in addition - it
doesn't break the tube by pounding
& the tube is always clean -

Edison

P.S. No difference in pump
from the regular except length
of fall tube. {

July 7 1866 1a2
Object is to get rid of the water
vapor

fig one has a contraction C to
send lamp off at pump. A
tube filled with glass coated
with phosphoric anhydride or other
water absorbing agent. It is
a contraction drawn to a point
& sealed. E is two or 3 turns
of iron wire hung on the hook.
The lamp being sealed is first
put into an air chamber &
brought up to 600 to 800 degs
fah. The aqueous vapor being
absorbed by the phosphoric
acid in fact combines with it
& it cannot again be driven

2
off by heat. The bulb is kept
at this temperature for an hour
or two it being glass sealed
no atmosphere can enter
~~the bulb~~ The stem is then
passed through a section of
rubber tube coated with
Vaseline & put in the Cup
G of the pump. a magnet
F is then brought up to G
so the attraction for the iron wire
the hook E is sufficient to
break it off & the pump is
started. The phosphoric
acid absorbs the water entirely

3.

as the diffuser of oxygen vapor is slow none again enters from the pump as the lamp is heated by a chimney & lamp while being exhausted.

Fig 2 shows a method of decomposing the water by powdered clean iron in B.

The lamp is put in a chamber & heated to 600 or 800 deg fahr while the steam extends downward or outward through the chamber is heated to a dark red. The iron combines with any

4.

free oxygen as well as decomposes the water vapor setting hydrogen free. The Beal's hook E is broken off by magnet.

fig 3 shows an iron spiral which acts the same as Fig 2 (except the spiral is kept red hot while the lamp is in the heating chamber) by an electric current.

Dyckhoff
Patent

July 7 1886
7/28

Fig 1

Fig 2

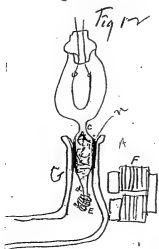
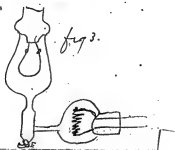


Fig 3



by the gas & for ⁽³⁾ solid Chlorides, Bismuth or Iodides, there are absorbent substances that will absorb the gas in the pores of the same that could be used in A & B such as ~~chlor~~ oxides magnesia, Charcoal & other inert substances that absorb gas, a compound could be used with which the gas or vapor combine, such as Quinoline in the case of Chlorine. The object of getting the Mercury out of the globe is to ~~prevent~~ diminish the blue and lengthen the life of the filament.

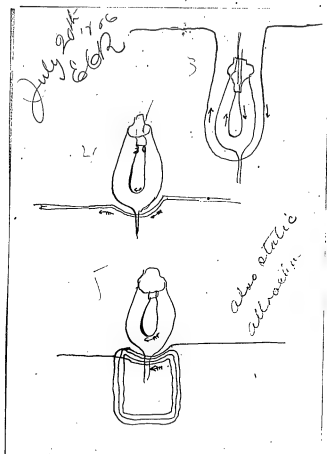
^{the use of it as an insulator?}
If you can make a claim for a chemical substance between the Lamp and the Mercury pump which will combine with the Vapors of Mercury to make a solid. There are other chemical substances which when mercury passes through or over them combine & ~~combine~~ ^{combine} the ones named such as heated Sulphur, Vapors of Nitric Acid

⁴
in fact any chemist could off hand suggest a dozen things in A & B that would accomplish the object hence I want to get very broad claims —

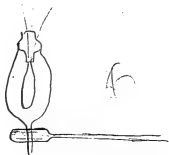
T. A. Edison

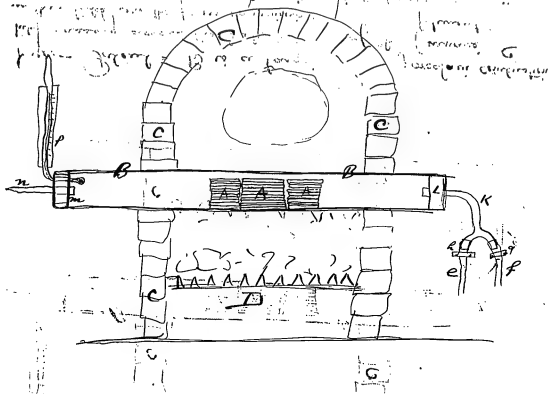
Ed. H. Schellenger
July 1, 1886

T. A. E.



July 20th
1896





Dyer - Patent - B is a large unglazed porcelain combustion tube passing across the hottest part of the furnace C in this tube are the forms containing the fibre or filament of bamboo or other material not yet carbonized. The moulds keep the elements under strain & pressure. The combustion tube is closed & luted at both ends. p is a thermometer to show the temperature of the exit gases. n is a tube with fine bore on end to allow gases to pass out. K is a two way tube one connected to a Hydrocarbon gas or Vapor the other with Chlorine. both gases or vapors are driven by ~~destruction~~ drying agents to take up the water vapor before entering the tube. The aspect

August

of the chlorine is to cause the Hydrocarbon gas or vapor to decompose at a lower temperature than the Chlorine having an affinity for the Hydrogen of the Hydrocarbon although the use of Chlorine is not absolutely necessary it is better to use it or any other gas which has an affinity for Hydrogen such as Bromine, as Carbon will be deposited in an early stage of the Combustion - The gases are passed through slowly the first the tube of air & water vapor, the heat furnace is started at a gentle heat which gradually increases. The gases passing slowly through leaving the previous ~~about~~ ^{chlorine} more Chlorine than Hydrocarbon should be passed say three to one of the Hydrocarbon, and the heat is continued up to the highest heat obtainable by a blowpipe. The fumes are then drawn & the tube allowed to cool. The Chlorine only being allowed now to pass & this is continued until the tube is below 400 degrees fahr when it is taken out the fumes removed and the tube filled with fresh fumes of course several tubes can be put in the same furnace. It is not essential that a Hydrocarbon gas should be used as Sulphuric sulphide of Carbon can be used alone, ~~or~~ without Chlorine,

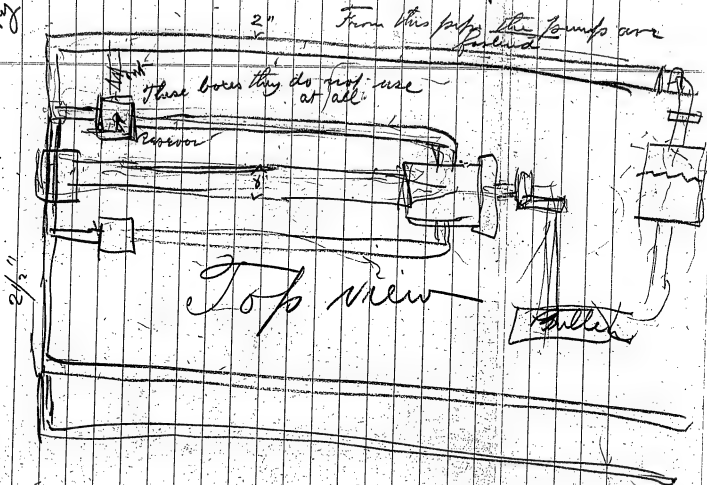
^{note}
Seeley = There have been laboratory reports in analysis where flax leaves sticks etc have been put in a combustion tube & carbonized carbon being deposited thereon. So you will have to make allowance in the light of this = I put in a definite article & shows means for accomplishing the result.

TOL

Aug 10 1886

There are 3 tubes to every
cylinder

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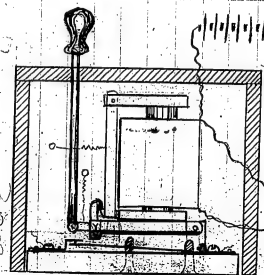
3-174

58 m. 1974



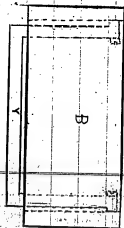
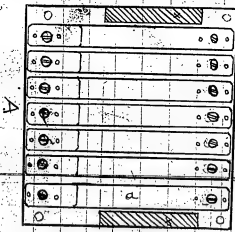
Aug 29th 1930

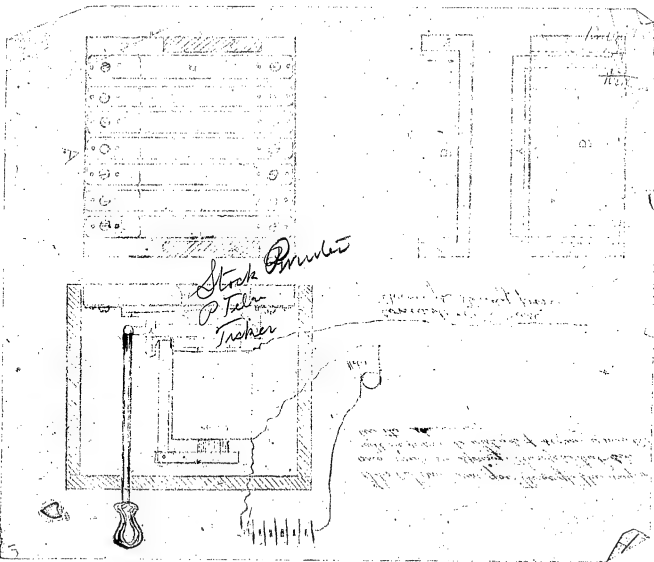
CCP



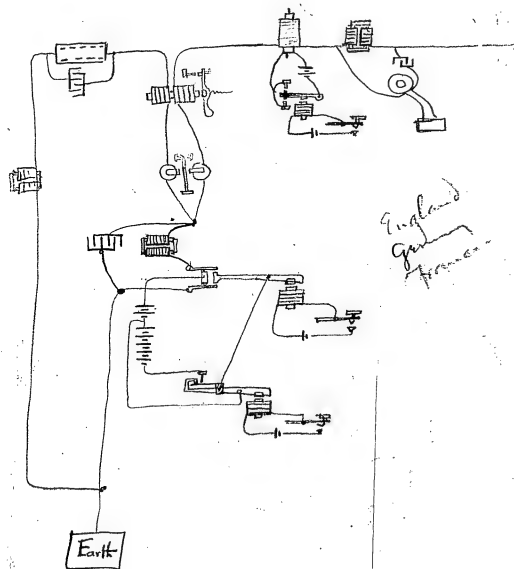
The return wire goes through the screw and needs no spring. therefore let Sci will be removed instead of screw as marked in the drawing

connects with base through steady pin



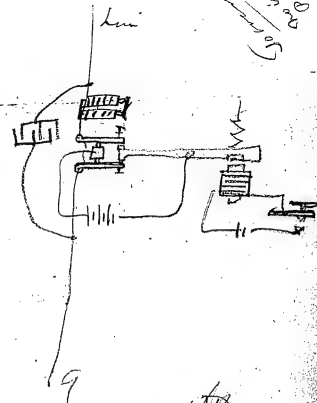
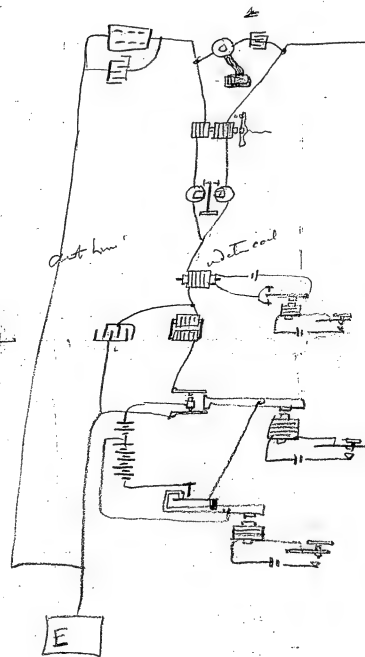


Quadruplex or phonoplex wire



England
Germany
France

Sextuplex



Do not touch the wire
as it is hot
when in use

Sep 27th 1885

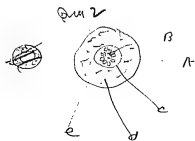
Mr. Sept 26 1926

Dyer Patent

100

The object of this invention is to make a filament obtain a filament of vegetable matter capable of forming a filament of carbon after carbonization by heat which shall be free from pith seams and have all parts of the body of the same relative density. I have discovered that the roots of the palm & other roots have at their center an extremely hard & homogeneous portion from which filaments can be prepared - after drying. Especially the scrub palmetto which has a root consisting of a spongy exterior and a central core of like material in the center of which is a perfectly round cylindrical fibre in certain kinds of the root and

in others a central part from which a cylindrical or flat filament may be cut. fig 1 shows this kind



B is the outer shell of the root & the spongy material C the large central core A is the solid material surrounded with holes very close to each other by splitting the core the central part may be obtained nearly round thus.

Fig 3



cut

in other roots from the scrub
palm or palmetto which grows
abundantly in Florida -

There are one & sometimes two
perfectly cylindrical fibres
with small central holes in them
which do no harm - these fibres
are obtained by splitting the
central core



A

A

These fibres have no pithy centers
but are ~~the~~ aggregation of an immense
number of parallel fibres locked
~~together~~ to each other with
considerable force -

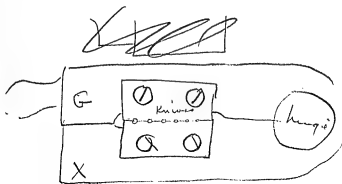
5

The ~~wire~~ roots should be
gathered whole along the fibres
or material taken therefrom and
allowed to thoroughly dry before
manipulating them to put them
in shape for use.

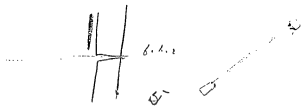
The method of preparing the
fibre is by drawing them through
a cylindrical cutting die
made in two halves. The holes
being graduated from large
to small the filament being
drawn through successively
so as to take a slight draw
each time

fig 3 shows
the apparatus

refutation - four places
mule - appx, 1912



The faces of the Kumio can be ground to keep them sharp -
X is fixed G is provided with a handle to open



The fibres are cut the right length and drawn through the first hole afterwards about $\frac{1}{4}$ of inch at each end is not drawn through the smaller holes this allows of enlarged ends on the fibres which are handy for clamping after the last cutting hole. The filament is drawn through a polishing disc -

Dick Must this go in two patents - I want to get a broad patent for making a filament for carbons for lamps made out of the central part of roots of plants or trees -

also: a specific claim
for the cylindrical fibres &
central part of the roots of
palms or palm family -

also: for the method of
forming cylindrical filaments
with a central enlarged
ends by ~~split~~ cutting dies.
split or not, its a cutting
draw plate not a draw plate
like wire drawers - also
for the split dies for allowing
enlarged ends -

Dick Patent,

Sept 26 1886 -

63
64
65

Then I take the vegetable filament before carbonization and soak it for several hours in a solution which contains dissolved carbonizable matter, such as sugar, molasses, licorice, coal tar & these materials permeating the interstices ~~between~~ between the microscopic fibres of which the filament is made up the filament is then taken out of the solution the surface cleaned from the adhering solution & then allowed to dry. Afterward it is placed under strain & pressure in the moulds & then put in closed boxes & carbonized the extra material being between the fibres carbonized & causes them to lock together &c.

and thus cause the electric current to pass through all parts of the filament equally
claim - ~~that~~ ~~soaking~~

The strength of the solutions should be of a consistency a little less than table syrup - it may be varied within wide limits and still accomplish the results -

Claim Soaking the filaments of ~~sub~~ previous to carbonizing in a solution containing a carbonizable material in solution, —

Dick - I think some one has soaked wood in sugar etc & afterward carbonized same

for arc carbons, so draw
your claim accordingly

2nd patent

Doing the same thing
to filaments already
carbonized or partially
carbonized & then carbonizing
them again & fully

Prob

Carrod makes his arc carbons
by squeezing the compound
of ground carbon & tar through
die carbonizing & then
soaking in sugar etc &

re-carbonizing. hence you
should draw your claims
to get around this,

prepare these immediately

See below

also come up

Pay for

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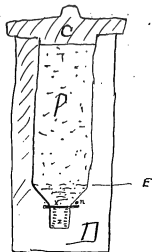
the

the

THOMAS A. EDISON,
No. 65 FIFTH AVENUE

Form L. 1100-3-15-'91.

New York, Oct 8 1886 1886



Intend =

Carbonizing under pressure,

2 are a number of filaments of organic matter.
D is a Crucible - C the cover & a piece
of Carbon to prevent the filament from going
upward. The Crucible & Cover is made
of Carbon & plumbago. D is filled with
powdered lead up to E & from there to the
cover with large pieces of lead.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1000-3-15-'96.

New York, _____ 188

2 C)

The whole is placed in a furnace and gradually brought up to a white heat, when the lead melts it surrounds the Carbons completely and produces a great pressure on them due to the Column of Liquid Lead - and as the lead does not boil until the melting point of wrought iron is reached the pigments are perfectly Carbonized & consolidated by the pressure; the Lead being liquid allows them to contract without ^{much} interfering resistance - They are then taken out before the lead has solidified and poured out leaving a little dross around the Carbons which can be removed by acids - In practice it is preferable to put a small Carbon box at the bottom of the Crucible &

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Pat. L. 1200-15-96.

New York, 188

3. c
Cover the whole with a powdered
alloy of lower ~~melting~~ point than
lead so that the carbons will be
surrounded with a liquid
before any great change takes place.
Other metals may be employed such as
tin Zinc etc —

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L 1000-2-15-96.

688
689
690
X
New York, *Oct 8*

1886

Patent.

Filaments are formed from
oxides got in a plastic state by mixing
a small quantity of material which
combines with the principal oxide,
such as an alkali silicate in small
quantity mixed with pure oxide of
Alumina, ~~or~~ Magnesia, Zinc oxide.
These with water become plastic like clay
when finely divided and can be
squeezed through dies by pressure in
the form of "cylindrical filaments."
These being bent in shape desired are
brought up to a full red heat after
wards they are taken out & soaked
in a carbonizable compound in a liquid
form such as Sugar, Licores, &c.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1880-6-15-95.

2 X
New York, _____ 188

The penetrates all the pores and then
the whole is reassembled in the furnace
in a box with powdered anthracite
& brought to a white heat. The walls of the
pores & surface are coated with
Carbon; ~~then~~ as the Carbon does not
reduce these oxides, the filament
will stand a high temperature.
If it is desired that a lower resistance
filament be obtained a second
soaking & recarbonization can be
had on the original porcelain filament
may have incorporated with it a small
quantity of the Carbonizable Compound
in this case no Alkaline Silicate is
necessary as the Carbon will act as a
flux - The great advantage of a
filament made in this manner is that
they have very high resistance hence

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

3 X

New York,188

very small copper wire may be
used to distribute light over a
large area, which is of the
highest importance

100 62 HIGH VOLTAGE
THOMAS A. EDISON

Wm. A. A. A.

188

Left with a
letter and a
copy of the
report to the
committee on
the Edison
system.

See appendix
to the report.

Also post 262145

copy
attached

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

Form 1, 1895-5-15-92.

New York, Oct 8 1886 -

Patent -

I form ^a the filament of clay by forcing it
through a hole by a press same as they make
arc carbons etc - ~~the~~ or roll it out in sheets
and stamp the filament out while plastic;
if it comes from the die it is bent in shape and
slowly baked until nearly all the shrinkage
is out - I then put ^{acuminate} it in a mould mixed with
powdered anthracite coal & bring them
up to a white heat - afterwards they are
taken out and put into a tube which
can be brought to a white heat ^{or volatile compound} ~~of a volatile compound~~
hydrocarbon gas is passed through
it this deposits carbon over the whole
surface of the porcelain filament,
afterwards the porcelain is eaten away
by hydrofluoric acid or other solvent.
the carbon filamentary shell put in a
holder on the ends of the wires running
through the inside part of the lamp &
Electric plates there to -

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1220-3-15-16.

2 B

New York, 188

any oxide or compound which can be worked
or put in shape while plastic & which will
stand a white heat will answer -

Plumbago may be sublimed the surface
of the new carbonizing filament so that
its entire surface becomes a conductor
comparing the current through the filaments
of plumbago its heat to incandescence
& a hard coating is formed on the
surface while it is immersed in
an atmosphere of a gaseous compound
containing Carbon - If an oxide
like pure aluminum, Magnesia, or Zirconia
be used it is impossible hence it will not
be necessary to eat it away by acid
or other solvent,

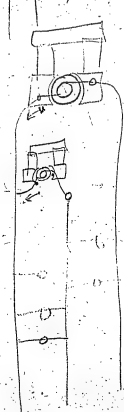
Tae

See patent on initial case
later down by note

apply

100 200

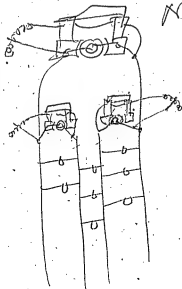
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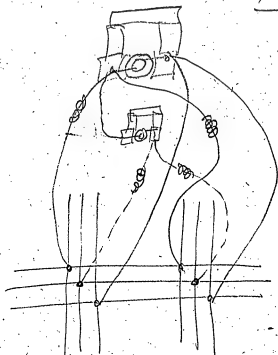
No 2



No 3

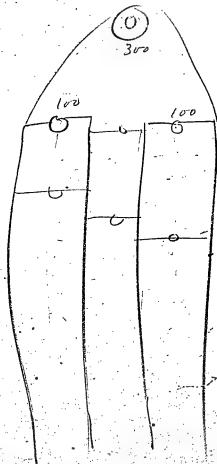


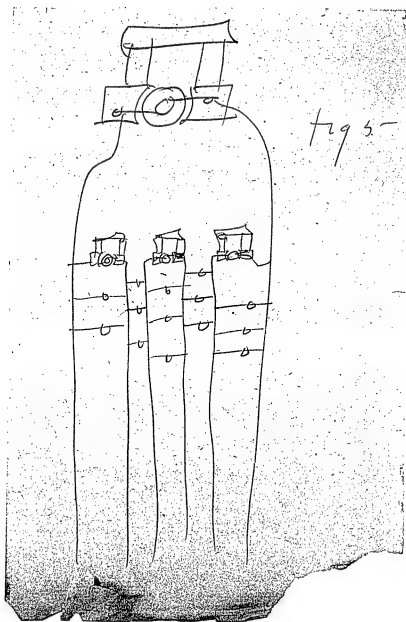
No 4



6x9

4.20





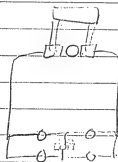
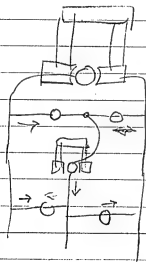
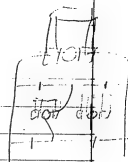
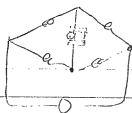
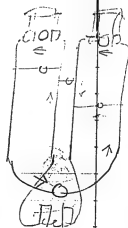
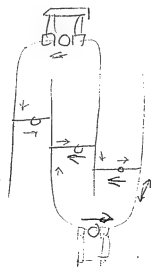
Hence 35-830 hp —

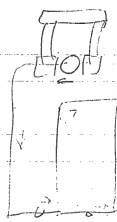
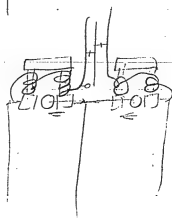
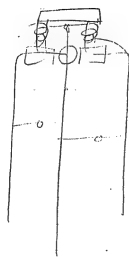
Starting with 35000 hp
 + 92 pct dynamo I lose 2400 - making to use
 at Niagara. 30360. Leaving
 15 pct in wire loss 4554 leaving at
 Motor terminal Buffalo 25806. For Motor
 loss 2064 - leaving 23741. For the
 dynamo terminal running in Niagara
 I lose 1899 hp - leaving 21842 -
 Leaving out loss in Conductors in
 City & pulling cable in Consumers meters
 nets. (Leaving 1747) ~~leaving~~ 20095 hp —

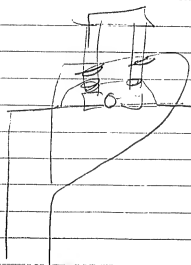
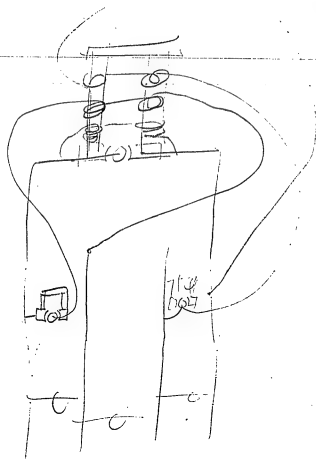
As I have a loss in City wires
 for Motors. 5 percent of 10000
 hp = + ~~10~~¹⁰ per cent on 10000 hp
 for light & (60%) overlap -

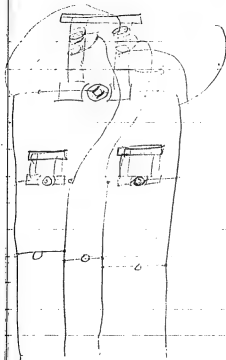
Therefore I must have on 500 hp is
 5 percent of 10000. Hence I must
 add at Niagara 830 hp + for the
 12 pct loss in light wires I must
 add 2000 hp at Niagara —

56 pct left + 10000 hp
 in Niagara

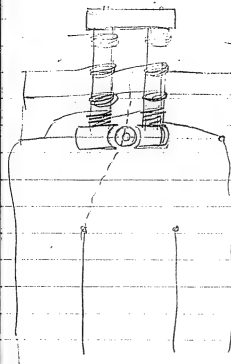


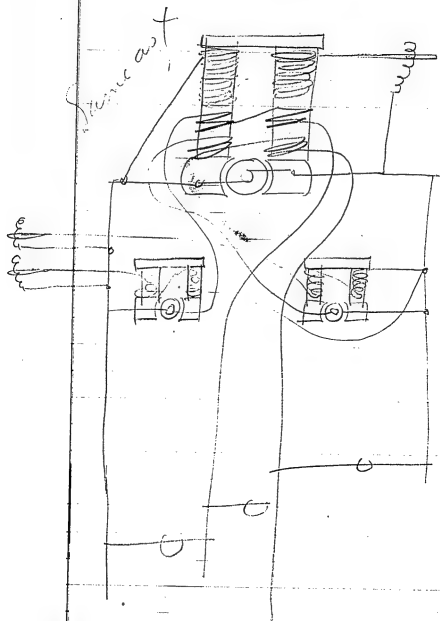


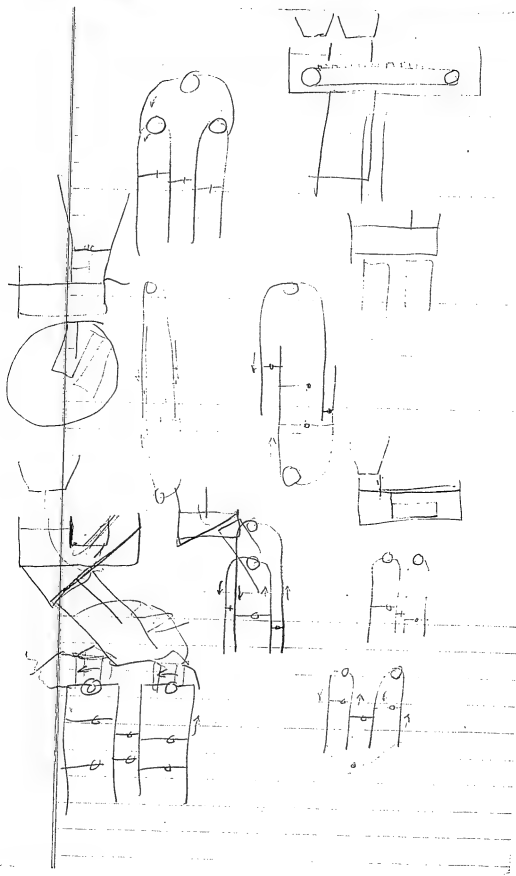




12/







4 million

40.
20000
800000

300/5000 (16.
300 20
750 36
200 25
61

75
20000
1500000

150
25
200
200

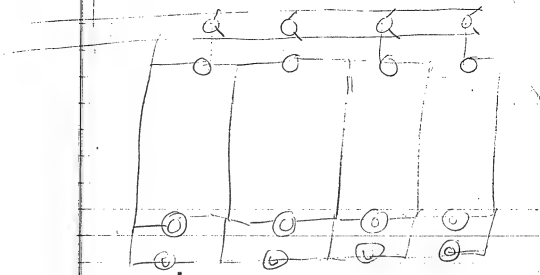
30000

14 trw -
4
46

336.
340
344
308
342
40

85
72
60

7
28 trw 8A.
140
160
336



17 300.990 (18.647)
17
13
11
10
102
88
68
120

6000 10000
3

118
4
6000 17 mil. 17 mil.
3000 1.55 8.50
1500 7.55 21.00
750 30.2 65.00 — million dollars

30 million 17 mil. 17 pct.
7,550,000 8.5 = 17
1,888,000 4.25
472,000 2.125
1,17,000 1 mile 17 pct.
10,000 kg - 55,000 - 8
117

500 volt amp pump -

$$\begin{array}{r} 28000. \\ 14 \\ \hline 112000 \\ 28000 \\ \hline 372000 \end{array}$$

$$\begin{array}{r} 44 \\ 50 \\ \hline 37200 \end{array}$$

$$\begin{array}{r} 44 \\ 1000 \\ \hline 37200 \end{array}$$

10000 amp.

$$\begin{array}{r} 4400 \\ 1000 \\ \hline 33000 \end{array} \begin{array}{r} 20000 \\ 33000 \\ \hline 110000 \\ 33000 \\ \hline 143000 \end{array} (135)$$

$$\begin{array}{r} 26 \\ 60 \\ \hline 150 \end{array}$$

$$\begin{array}{r} 26000 \\ 14 \\ \hline 104000 \\ 26000 \\ \hline 364000 \end{array}$$

268.435 456 CHU 135

100 volt, 1000
200 500
400 2500
500 1250

125-amp.

125. amp.

804 lb to 12

15000 feet.

- 10
- 15000
- 50000
- 150000
- 1 754000
- 2 375000
- 4 187500
- 8 93750
- 16 46875
- 32 23437
- 64 11718
- 128 5859
- 256 2929
- 512 1464
- 1024 732
- 2048 366
- 4096 183
- 8192 91
- 16384 45
- 32768 22
- 65536 11
- 131072 5
- 262144 2
- 524288 1
- 1048576 0
- 2097152 0
- 4194304 0
- 8388608 0
- 16777216 0
- 33554432 0
- 67108864 0
- 134217728 0
- 268435456 0

$$\begin{array}{r} 600 \\ 150000 \\ \hline 400000 \\ 150000 \\ \hline 550000 \\ 150000 \\ \hline 700000 \\ 150000 \\ \hline 850000 \\ 150000 \\ \hline 1000000 \end{array}$$

$$1000 / 400000 / 4$$

100% of ohm
or $\frac{1}{250}$ of 1 ohm

$$\begin{array}{r} 16.777216 = 0.725 \\ 3.3554432 = 0.362 \\ 6.7108864 = 0.181 \\ 13.4217728 = 0.090 \\ 26.8435456 = 0.045 \end{array}$$

800000 3
 1000000 3
 1000000 3

1000000 4
 1000000 4
 1000000 4

$$\begin{array}{r}
 330000 \quad 927 \\
 \underline{264000} \quad 330000 \\
 66000 \quad 3640 \\
 \underline{30360} \quad 30360 \\
 4554 \quad 131800 \\
 \underline{25806} \quad 30360 \\
 206448 \quad 455400 \\
 2874152 \quad 2580607 \\
 \underline{189932} \quad 286445 \\
 2284220 \quad 2374152 \\
 \underline{18993216} \quad 18993216 \\
 147376 \quad 2184220 \\
 \underline{174737} \\
 12009483
 \end{array}$$

$$\begin{array}{r}
 880000 \quad 200000 \quad (3 \\
 \underline{10200} \quad 990 \\
 880000 \quad 200000 \quad 160 \quad 10000 \\
 \underline{1250} \quad 1250 \\
 60 \quad 500 \quad (838 \quad 200 \quad 120000 \\
 \underline{1750} \quad 200 \quad 120000 \\
 200 \quad 60 \quad 200 \quad (2000 \\
 \underline{200} \quad 200 \quad 200
 \end{array}$$

$$\begin{array}{r}
 85830 \quad 2000000 \quad (30 \\
 \underline{179150} \\
 208500 \\
 \underline{179150} \\
 29350
 \end{array}$$

$$\begin{array}{r}
 360000 \quad 360000 \\
 \underline{28800} \quad 288000 \\
 33120 \quad 33120 \\
 \underline{496800} \quad 496800 \\
 28152 \quad 88120 \quad 25850 \\
 \underline{225214} \quad 28152 \quad 206800 \\
 2584784 \quad 225216 \quad 25850 \\
 28782 \quad 25850 \quad 206800 \\
 \underline{2854} \quad 206800 \quad 25850 \\
 20948 \quad 23782 \quad 206800 \\
 \underline{2} \quad 47564 \quad 206800 \\
 \quad 23782 \quad 206800 \\
 \quad 285384
 \end{array}$$

76000
504000
20000

5000
3000
3000
6500
5000
1500
1400
2000
3000
10000
42000

Ex munt-

80000
392000
364000
28000
600000
30400
20400
574000

5000
3500
2500
2000
1000
1500
3000
3000
4000
600
2000
1000
1000
1500
5000
12000
1500

Bu Ex for 20000

50100

Dr. Werner Siemens Eng
Dr. Werner Siemens Eng

Dr. Werner

Dr. Weight Railway

Railway

Railway

Railway

Railway
Rampington (Exington Railway)

2) 170

170. Volts

Railway

289
36
1734
867
104.04

289
36
1445
867
104.11

2 35
12.5
37.5

180
180
1440
180
3,2400
28.
42.
7

324 / 1000 (32.
324
252
648
1800

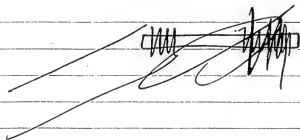
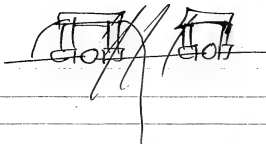
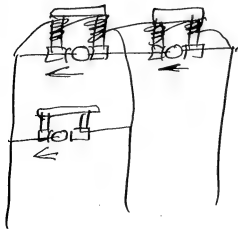
324
324
64
972
324
324
972

170
170
11900
170
259.00

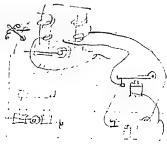
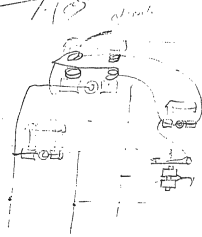
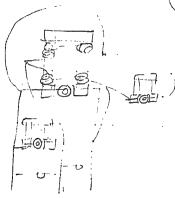
289
1156

289
2007
8677
106.17
289
36
1734
867
104.04

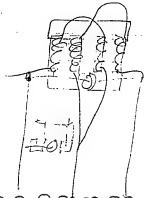
OK



Good Nov 1/89



SSSSSSSSSSSSSSSSSSSSSS



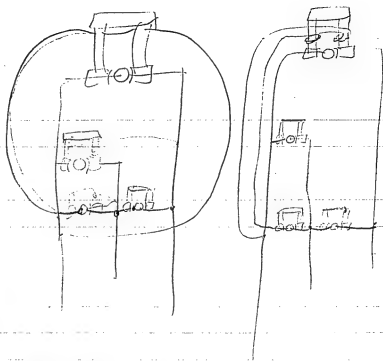
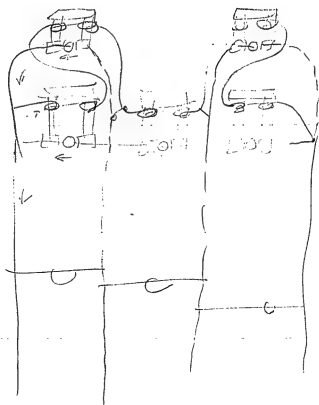
6

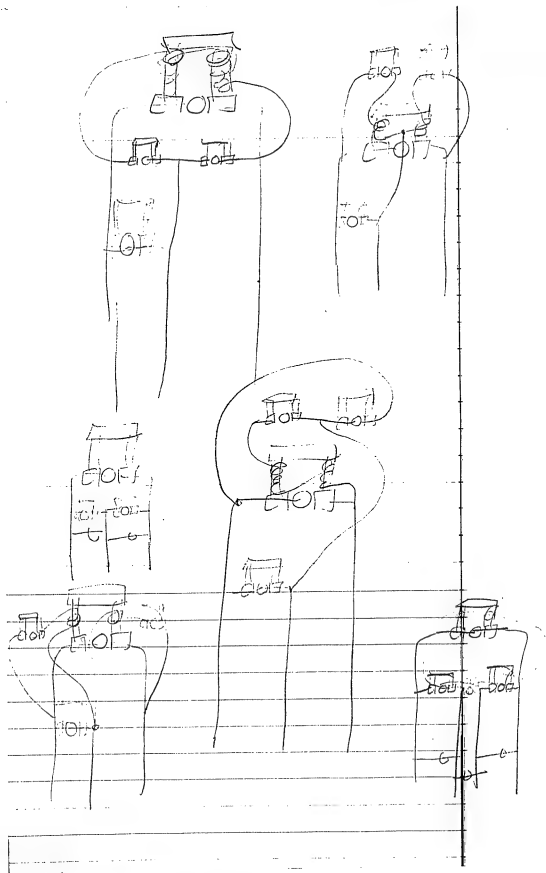


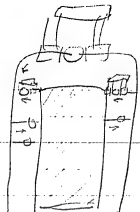
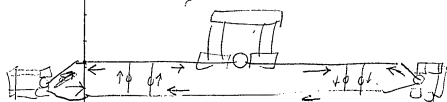
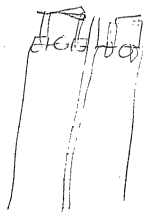
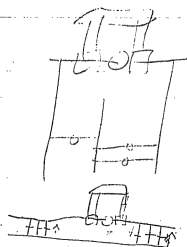
SSSSSSSSSSSSSSSSSSSSSS
SSSSSSSSSSSSSSSSSSSSSS
SSSSSSSSSSSSSSSSSSSSSS

SSSSSSSSSSSSSSSSSSSSSS

SSSSSSSSSSSSSSSSSSSSSS
SSSSSSSSSSSSSSSSSSSSSS







Oct 25 1886 ¹⁵⁵

Take out patent for this

Use regular dynamo with regular brushes but they only serve to energize the field which is regulatable by the resistance of these. On the end of the shaft next commutator are two continuous contact disks secured to shaft & rotated together with the surface which is continuous a contact brush rests, both of disks are insulated

2

157

from each other, I permanently connect one commutator bar to one disk & the commutator bar directly opposite on the other side of the commutator & connect to the other disk then at every revolution the current is reversed in the wires leading from the disks while the regular commutator brushes take off a continuous current. The two wires connected to the two disk contact brushes pass to a distant point say a mile etc.

Then the two primary wires
of converters are connected
across multiple and
preferably although they
can be in series, the secondaries
are connected in series
to give say 200 volts,
the center wire being connected
between this & have a three
wire system, if 2
were the secondaries are
put in multiple and the
high tension machine is
say 2000 volts —

The Converters have large
masses of iron in the form of
fine iron wire or sheet, hence
the slow reversals will
not show in lamp, but
perhaps if not necessary
you need not say anything
about this way of getting
around defeat of slow
reversals, — I don't want
to confine myself to using
this machine in connection
with converters as the lamp
may be put in direct
the tension being reduced
of course to the regular

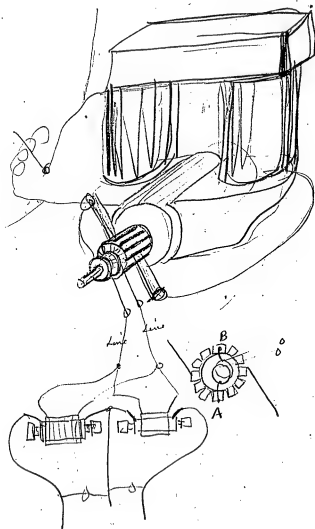
— October — 1886

163

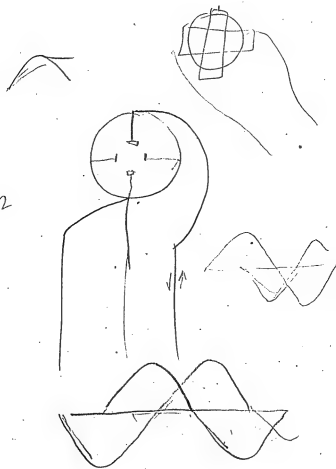
require valls,

also I can in addition
to putting on Lamps
on the reverse circuit
or when using the circuit
put lamps on the regular
brush circuit —

7118

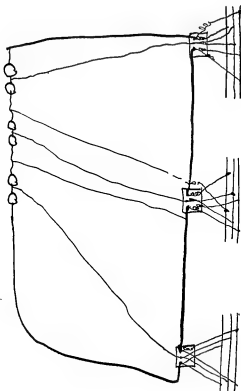


12



LAW OFFICES OF
DYER & SEELY,
(PATENT BUSINESS EXCLUSIVELY)

Wm. F. Dyer
410 Wall Street,
New York, *June* 1886



November-1886-

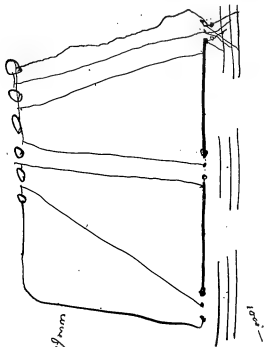
LAW OFFICES OF
DYER & SEELY,

(PATENT BUSINESS EXCLUSIVE)

Richd. H. Dyer

110 Wall Street,

New York, Nov 1 1886



from 2 1/2 m

Each pressure wire
Separate regulators for
the same

Box 1

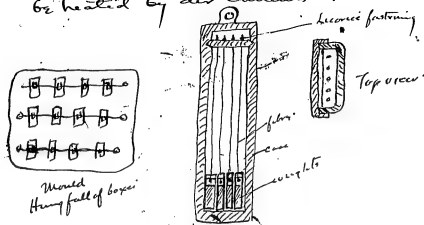
November-1886

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, 188 •

The object of this invention is to produce a filament of Carbon which shall have an even carbonization, and not become distorted which when electrically heated.

The invention consists in so arranging the filaments that each shall be heated equally on all sides simultaneously directly by radiation and air currents, or indirectly by being placed in receptacles which shall be heated by air currents & radiation.



THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

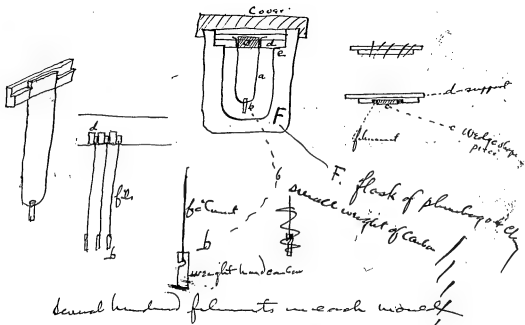
Form L. 1300-9-15-70.

New York,

Nov 7

1886

The object of this invention is to obtain Carbonized filaments for incandescent electric lamps which will be of even resistance and will not become distorted while heated electrically while in the lamp. ~~and will be a better~~
~~and will be a better~~
~~and will be a better~~
The filament is heated by radiation of heat, and not by conduction. The filament is suspended out of contact with any body in a carbonizing chamber a small weight serves to keep it from distortion while being carbonized thus preserving the shape originally given to the Carbonized filament.



2 New York, 188

Took the patent, make broadest claims,

Claim: Carburizing carburizable filaments by
radiated & convected heat. —

Out of contact so no heat is conveyed to filament
by conduction —

Suspended filament, bent or formed to shape
originally & placed under strain
while being carburized to make it hold
its shape —

¶5. The filament used in lamp is broken off
about $\frac{1}{4}$ inch from point of suspension
so that it ~~is~~ will be carburized by radiation
at the point or not by conduction from the
support, — all carburization histories of every kind
The filament was in contact with matter at some
of its parts — our experiments without exception
use powdered charcoal, J. A. C.

Where are the other applications? S.S.

Nov 16 1888 705

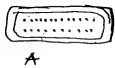
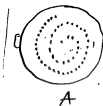
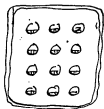
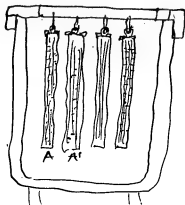
The object of this invention is to Carbonize
Carbonizable filament for Incandescent
Lamps, which shall have an even
Carbonization & not become distorted when
heated electrically when exhausting the
globe of the lamp and also to make a
better & more homogeneous filament

A Mass Carbon cylinders or boxes round or flat
into which shaggy filaments are packed &
placed in thin packs with powdered Anthracite
Coal or other form of Carbon - if good heat
conductivity ~~or even a metal which will not~~
or other material which will not be
fused at a high heat such as Corundum
Silica Etc, These boxes are rather small
& contain only a dozen or so filaments
The tubes are suspended by Carbon or
other infusible hook & out of contact
with each other so they are heated by
an connection current & radiation
then making an equal heat These tubes
being suspended in a plumbago moved
the mould in its turn is placed in
another similar mould with air
spaces, The outer mould receives the
flame & heat the inner mould
mostly by convection of air current
& radiation then the second mould
receives an even & equal heat.

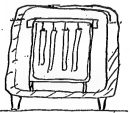
Claim - Carbonizing filaments by radiation &
convection current

- The double box -

No of small suspended cylinders boxes etc
with sufficient space so they are heated
by convection & radiation without
conducting etc



2. section of tube



November -1886-

Nov 16 1886 -

Seeley -

This is the new system only thing want to
point out is, The use of an extra high
tension main between the several stations
so that in case of a break down on the main
from the ^{power} central ~~station~~ or steam station or in
case repairing the station can be supplied
from 1 or more stations by means of these
break down mains.

also means of throwing the system of
Dynamo's at the steam station in
multiphase (3 wire) with any other system
where say 3 stations use the same volt
lamps they can all be thrown on one
set dynamo's & Engines during the day
for decreased consumption.

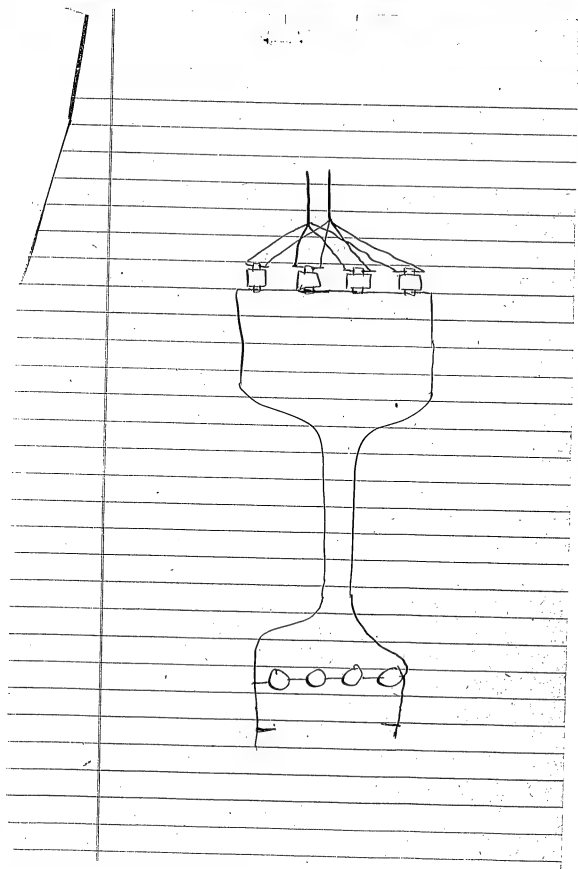
E

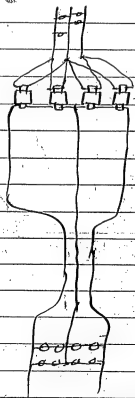
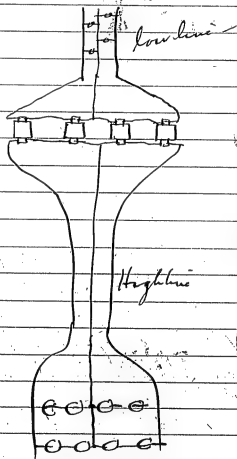
Seckey -

N 120 1886 -

Here is some variation for a parallel
Converter in series on high line & other
or low coils multiple and etc
you will comprehend

Tall





The object of this invention is to obtain homogeneous Carbon filaments for incandescent Electric Lamps.

The invention consists in the use of

The non volatile residues of the resins and bitumens which are Oxygenated Hydrocarbons.

With or without infusible conducting or non conducting elements or Compounds.

The invention further consists in the manner of forming the Carbonizable filament and in the manner of Carbonizing the same,

of the oxygenized residues of Resins and bitumens I prefer what is known as Asphaltene which is prepared from common refined Asphalt by heating the same at about 250 Centigrade in the open air until the volatile matters are driven off - This is allowed to cool & is then broken up and very finely powdered, it is then put into a mould with a plunger from this mould there is a fine orifice through which the

Asphaltene may be forced into a thin filament the mass being heated to the softening point of the asphaltum. - The filaments are then hung in small Carbon boxes or number of which are placed in a chamber of Carbon. The whole is heated for about 15 hours to a heat a little below the softening point ^{into just mags off} ~~the~~ volatile matter is thus driven out & when the heat may be

raised slowly without melting or softening the filament until the whole is thoroughly Carbonized -

If the Asphaltene just before all the volatile matter are driven off in ~~the~~ its preparation is mixed with pure finely divided graphite. When allowed to cool ~~powders~~ process may be put into the filament forming press without powdering & by a high heat filament forced out

In this case the filaments
may be carbonized by the
regular methods without
previous drying slowly as
the Graphite prevents the
~~effects~~ effects of softening of the
Asphaltene Oxides
infusible oxides such
as lime, magnesia etc.
may be substituted for
graphite when high
resistance filaments
are required,

I do not wish to confine my
to asphaltene as it is not
an exact compound but
claims generally the

heating of all Bituminous &
Resinous substances until
nearly the whole of their volatile
constituents are driven off
stopping the heat just below
the carbonizing or decomposition
points. Petroleum, Resin
etc. may be used -

If filaments are formed
out of infusible oxides.
They may afterward be
impregnated with asphaltene
to accomplish the same purpose
The Asphaltene being
dissolved in Benzol
or other good solvent which
is volatile at low temperatures

Sedley -

I find asphaltine the best
substance for impregnating
~~the clay~~ ^{etc} ~~filaments~~
~~of the clay~~ - you may have
to divide this application
as it for soaking. How
would it do to put all
the claims in & then when
we want to can make a
division -

Claim formation of filaments
from asphaltine or equivalent
substance

- 2nd Combined with powdered
Carbon or Graphite
- 3rd Combined with Infusible
substance...

~~of~~ previously formed filaments
of Carbon or ~~infusible~~ non-
conducting materials,
impregnated with Asphaltine
in proper solvent,

~~previously formed filaments~~
~~of Carbon or infusible non-~~
~~conducting materials,~~

etc

Nov 21 1886

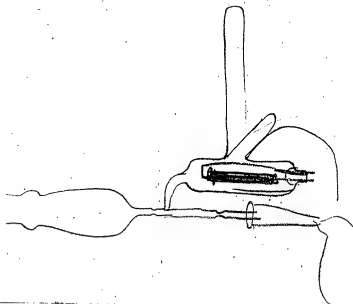
TMS

107
The object of this invention is to make filaments of carbon for incandescent electric lamps which shall be of even texture & of high electrical resistance.

The invention consists of the method of forming the Carbonizable filament, by first taking a filament of some substance which is soluble in liquids which do not act on the Carbonizable material to be placed on its surface for instance Boric Acid can be drawn out when hot into very fine perfectly cylindrical filaments. If these be bent in proper form they may be coated with many concentric layers of carbonizable material, for instance if the Boric Acid filament be immersed in a solution of Asphaltene in Benzol, once & then allowed to dry which it does quickly it may again be immersed & a second coat put on - Each coat

can be made exceedingly thin according to the dilution of the solution after a sufficient thickness of carbonizable material is obtained the whole is thrown into water which dissolves the Boric acid & leaves the filament of asphaltene with a hole in the centre ready for carbonization, as the hole in the centre increases the resistance of the filament a saving in conductors is obtained owing to the great number of concentric layers any defect in one layer is rendered a small factor. It is evident that if tubes of Boric acid be heated and drawn out into filaments they will be hollow & if the liquid containing the Asphaltene be drawn through at intervals it will deposit it on the inside of the glass tube - In this case the Boric acid is

over



dissolved very much quicker
 I have spoken of Boric acid as a
 former & Asphalthe as the Carbonyl
 Material, but it is evident that
 these materials can be changed
 in almost endless ways.

If melted Rosin be drawn out
 into filament, It may be coated
 with layers of Licorice dissolved
 into, gum Distive starch,
 Tragacanth, Arabic, then of
 Throm into spirits Turpentine
 The Rosin may be dissolved into,

It is not even necessary to dissolve
 the Rosin out as the whole is
 Carbonyl, ~~Silica~~ ~~all that is necessary~~
 is that there should be a
 smooth substance Carbonyl or
 salvable on which to

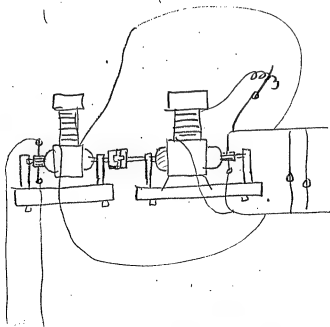
231
build up the main portion of the
film by successive concentric
films of the material the solvent
of which volatilizes,

Now friend Sealey can you
get a broad claim to this
process — Concentric Multiple layers
Willow-carbon — dissolvable former or
Contingable in — etc etc,

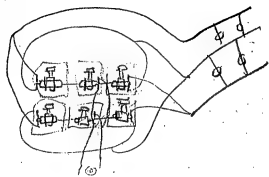
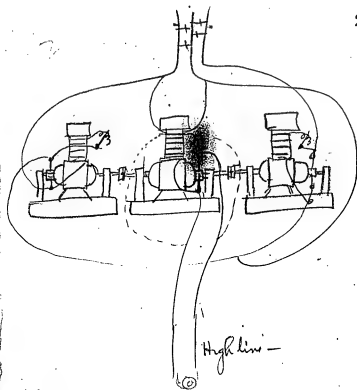
NOV 21 1886

TAE

203



205



Seskey -

Nov 19 1886 700

207

Want to get all the claims possible on this method of working from high to low currents. be careful in drawing patent not to call this a reduction reducer - It is a motor system driving a Dynamo mechanically make this distinction broad. So they cannot react Ayton & Perry's old suggestion of Motors driving dynamos as a current reducer -

The fifth of the invention is 1st - a motor worked by high electromotive force driving by direct connection a

Dynamo giving out low ²⁰⁹ volts.

2nd Insulating joints or means so that the high line is absolutely insulated from the low line, + arranged so that no cross can occur. The Earth intervening would in case the wire in one circuit came in contact with the base prevent any Emf from entering the 2nd ckt in fact the circuits could be miles apart as far as crossing is concerned. (see ?)

3rd. Placing all the Motors in Multiple arc - strong claim - or on 3 wire

~~4th - energizing the motor's driver~~ -

System which is practically
same thing -

4th - arranging one motor
to drive two machines as
well as one - ~~also~~ This gives
a 2 wire unit, -

5 = Energizing the fields
from the dynamo's ~~cost~~
and motor from the low

Current,

6 - also Energizing the Motor
field from its own ckt

Deck will tell you what
I want to put this patent in
for — E

Seeley -

Nov 26 1886
11-18

The object of this invention is to ~~decrease~~ ^{increase} the quantity of iron in the rotating armature of a dynamo machine or rotating converter and at the same time not increase the strength of the Foucault currents in

the iron - Therefore the iron plates which make up the core have been separated by paper

The invention consists in coating each plate by a varnish which will not shrink or crack at a high temperature

~~Each~~ which shall be a good insulator of electricity and a good conductor of heat so as to allow the heat to be rapidly conducted to the surface -

After the plates have been stamped out & the burrs taken off they are dipped in a hot solution of Asphaltum or a hot solution of Asphaltum in Turpentine Benzol or other Volatile Solvent. The film dries almost instantly is exceedingly tough, stands a high temperature & ~~is not~~ may be safely reduced to $\frac{1}{3000}$ of an inch thick

The plates are all assembled
on the shaft and by means of
bolts are gradually brought
in intimate contact while
the animal is in a hot
chamber. The heat serving
to drive off all traces of
the solvent used. The
film left will sustain
a heat of over 400 degrees
Fah without softening or
running out of the plates
& is sufficient tough to
prevent any burrs from
being forced through it,
so as to make electrical
contact with the adjacent

plates - ~~The method of~~
~~the distillation of petroleum~~
~~is~~ almost all of the Bitumens
or partially hydrogenated Resins
in proper Solvents will
answer, but I prefer ordinary
Asphalt boiled to drive
off some of the volatile
Constituents

Claim The method of ~~making~~
~~electrical~~
insulating the iron armature
plates of Dynamos by
coating them with an
insulating ~~substance~~ varnish
The Use of Asphalt in proper
Solvent,

Heating armature after
assembly ~~to dry~~
no

— November —

Nov 28 1886

Seeley

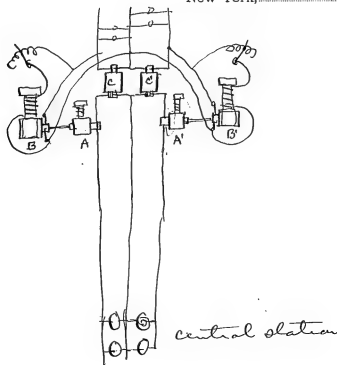
In the future some Westinghouse
+ Brushby make seek to evade the Lancelotti
patent by running a dynamo by a motor
now if they do it by a belt, they might
evade the patents as I understood Edison
suggested it in 1879 — Now I want to
cover the only practicable way to do it &
in addition connect it to our 3 wire
system & so combine it that I can cover
it through combination with other
essential feature in any system such
as feeders, etc —

I send you sketch, but you must
make drawing showing a distributing
system feeders, feeder Regs. - pressure
line —

The advantages of this system is that
one system can be absolutely insulated
from the other — as an insulating joint
between the two machines — also the
pressure in the low line can be regulated
by varying its field magnet which is not
the case in Revolving Converter,
3rd class Direct Connection from shaft to shaft
of Motor & Dynamo — Workshop, Pa

THOMAS A. EDISON,
No. 65 FIFTH AVENUE

New York, 188



Object of patent regulation of the EMF at
the reducing station while that at Central
Station is constant -

AA' are two ^{Motors} ~~dynamos~~ wound so that a $\frac{1}{2}$
speed they give a minimum Counter Electromotive force
B are Motors which are run from the low tension
line, — when the volts are to be increased
or diminished on the high line the fields of B

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1002-13-56.

2

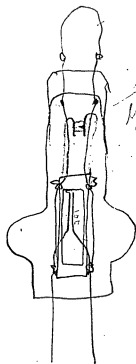
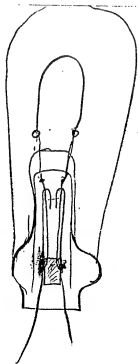
New York, 188

are increased or diminished in strength
& thus the Motor B runs at a higher or lower
speed - this causing A to give greater
or lesser Coulter EMF or back pressure
Thus if the Central station has a Constant
of 2500 volts & A a Coulter pressure of
500 volts, the net will be 2000, if now
there is a fall of pressure due to load
the strength of the field of B is
increased, the speed of A diminished
is the back pressure diminished thus
bringing the pressure up to the required
amount,

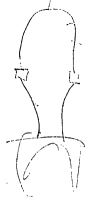
Nov 29 1886
T A E

Nov 30 1886
J. H. M. S.

722



might make a
kind of ~~bag~~ ~~bag~~
or ~~bag~~ ~~bag~~
or ~~bag~~ ~~bag~~



Patent - Dec 18 1886 -

P. S.

The object of this invention is to produce Mother of pearl surfaces artificially -

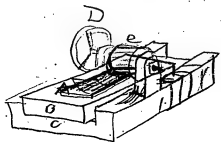
The invention consists in forming by ~~using~~ a flat plate of mother of pearl formed of one or more pieces the whole resting on a hard flat surface.

Impressions being taken from the face of the mother of pearl on plastic sheets or material by pressure ~~similes~~ the apparatus used being similar to a lithographic press.

The colors of mother of pearl being due to minute wavy lines formed

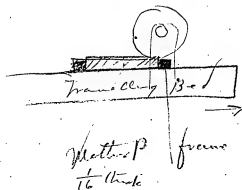
by layers of tissue & animal matter the depression between the lines being quite sufficient to cause a perfect impression on the plastic surface of the sheet or material pressed on it. I have discovered that not only are the many thousands of lines accurately transferred but that the line like appearance is transferred as well. If a ~~po~~ mirror like sheet of tin foil be impressed on the mother of pearl it will have the exact appearance of the same and its metallic ~~character~~ appearance is entirely destroyed. Metallic foil, Celluloid ~~and~~ and other plastic material may be printed as above & used for ornamenting.

Picture frames fans and in fact takes the place of gold foil - Britannia Metal table was a number of other articles can be given a mother pearl surface by this means -



C is the steel roller - B the travelling platten & the frame D the wheel A the Mother pearl in frame - The tin foil


being laid on M pearl block is printed just like lithograph



Can you claim the art of printing from Mother pearl also a new article manufacture Mother pearl surfaces or foil -

The process - ought to get Broad claims in it is

— December. — 1886 —

new art - 

Mem - It works splendid - have made
machines
It is possible to rule fine lines in a
wavy manner by diamond tool
and a dividing Engine also on steel.
on other hard metal which will
imitate M pearl - should you
speak of this, in this appen
I intend take out another
patent on it -

TAE

Bill to me personally

Technical Scrapbook, Cat. 1152

This scrapbook covers the period May-November 1887. The entries are by Edison. Included are notes and drawings relating to phonographs, ore separators, lamps, electric power distribution and regulation, and the production of wrought iron. Many of the entries contain notes by Edison to Richard N. Dyer, his patent attorney. The name of Mina Edison appears as a witness on some of the documents. The case number of Edison's patent application has been written on some of the items.

May 14 1897

Patent

For a new process

The object of this invention is to
Make wrought iron direct from
Molten Cast iron.

The invention consists in running
the molten metal into pigs ~~at~~
in the sand mould or other receptacle
and the ends of which are two iron
rods connected to a powerful
dynamic Electric machine of
sufficient amperage capacity
to cause the iron to ~~remain liquid~~
it to boil & remain liquid for
such a time as the carbon is
nearly burnt or all burnt out,
~~as the molten metal is gradually~~
~~run into the sand mould~~
~~and the iron rods~~ The rods are
from the current is taken off the
rods pulled as the liquid allowed to
cool. The ends of the bar are
slightly longer than the bar itself
to prevent the bar cool rods from

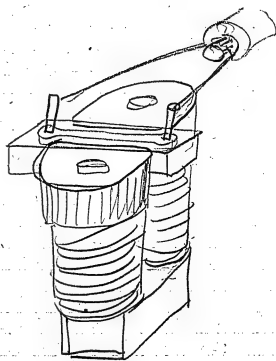
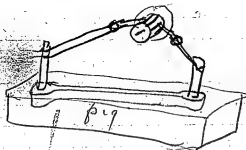
Melting to improve the grain
equality. I claim the means
to be placed in a powerful
magnetic field so that when
it is cooling the particles of
iron shall be given a directive
force, and thus give a grain
I am aware that Electric currents
have been passed through
molten iron, and I am also
aware that molten iron has been
allowed to cool in a magnetic
field, but I claim as new the
use of a sufficiently powerful
current to maintain such iron
in a molten state for an indefinite
time, and also the use of a sufficiently
powerful magnetic field as
to cause a directive force to be
given the particles of iron
when rapidly set. ~~The~~ No effect
will be produced with the small
~~the~~ magnets hitherto used

as now at the moment of hardening.
from a molten state has very
little magnetic capacity
hence ^{the} Exceedingly powerful
~~field~~ magnets of the large
Modern Dynamo machines
will alone produce any
effect,

Claim, the passing of current
to keep in liquid state,

Claim powerful field etc.

Claim both in combination



In replying please address
"The Edison Machine Works."

THOMAS A. EDISON, President.
CHAS. BATHGELOR, Vice-President and Gen'l Mgr.
SAMUEL INSULL, Secretary and Treasurer.
JOHN KRUEBI, Assistant Gen'l Mgr.

THE EDISON MACHINE WORKS.

CABLE ADDRESS:
"XYDSUN NEW YORK."

SCHENECTADY, N. Y., _____

Syracuse

Patent -

Improvement in Phonographs

The object of the invention is to improve the articulation
of the phonograph -

The invention consists of a cylinder of wax coated
or other yielding material such as moulded Kalam,
Camphor, Naphthalene coated with tin foil or film
of gelatin or other smooth extensible materials,
so that the surface will be very yielding & yet
none of the material of the cylinder shall be
cut away -

The invention further consists in causing
the reproducing point connected directly
to the diaphragm to be given motion not
by riding in & out of the undulations
but by etching ~~the~~ attraction between

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SCHENECTADY, N. Y., _____

2

The point and the Electrified Cylinder or point
as the case may be, The point does not come
in contact with the moving surface but nevertheless
~~the~~ it will ~~be~~ be given a motion corresponding to
Pitch & amplitude of the undulations.

The Electrification of the point or tin foil
surface is accomplished by a small disk of
hard rubber or glass provided with a rubber
& collector - ~~or~~ The disk being turned simultaneously
with the phonographic cylinder - ~~instead~~
~~instead~~ . The ~~House will electrify of Varley~~
~~may be used instead with Commutator~~
Any other Electrifying device may be used

~~instead~~
The Cylinder of wax or other material
is connected to the Earth in the
usual method in static electric
apparatus.

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SCHENECTADY, N. Y., _____

The smooth surface of the cylinder
is grooved by a grooving tool
like a chaser. This is in advance of
the recording point ~~on the body~~.
The recording point is of chisel shape
& indents the apex of the ridge
left by the Threading tool. Thus
~~the~~ the record extends outward beyond
the general surface of the cylinder
& is very susceptible to attraction
for the point on the receiving diaphragm
claim. reproducing ^{from} ~~actual~~ ~~speaker~~
~~the sounds from the record~~ phonograph
records by electrification of the
~~single~~ record or reproducer or
both.

In replying please address
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CHAS. BACHELOR, Vice-President and Gen'l Mgr.,
SAMUEL INBULL, Secretary and Treasurer,
JOHN KRUEH, Assistant Gen'l Mgr.

THE EDISON MACHINE WORKS.

CABLE ADDRESS:
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SCHENECTADY, N. Y., _____

- 2nd Reproducing withal contact,
- 3 The Chisel point -
Cylinders of
- 4 - Wax ~~or~~ or other yielding material
coated with an Extensible material
- 5 forming a thread or screw ~~top~~
+ recording on the apex of the
ridges between
- to 6 - ~~yielding~~ ^{of yielding material} cylinders, covered with
metallic ~~the~~ foil.

etc - Tal May 21,
1887

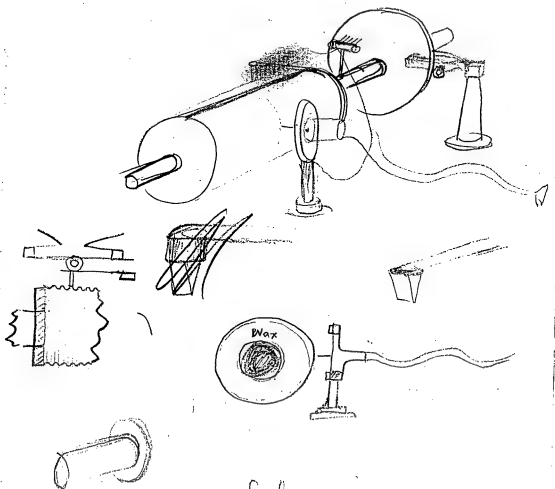
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JOHN KRUESI, Assistant Gen'l Mgr.

THE EDISON MACHINE WORKS.

CABLE ADDRESS:
"XYDSUN NEW YORK."

SCHENECTADY, N. Y., _____



Brass sleeve on which wax is
cast ~~and~~ moulded as a cylinder.

CABLE ADDRESS "EDISON, NEW YORK"

THOMAS A. EDISON.

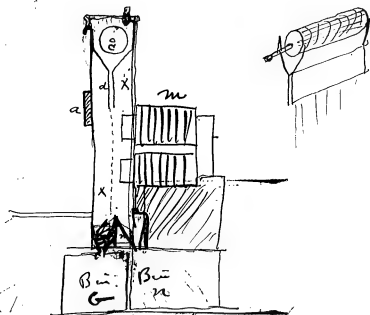
40 & 42 WALL STREET.

NEW YORK, _____ 188

725

Dick -

Patent, Apparatus for ~~sticking ore~~ - separating ore



X X is a closed chamber to prevent draught of air from disturbing the perpendicular fall of the fine particles. This chamber which is made of wood is in certain instances where the ore has to be ground very fine to liberate the gold

THOMAS A. EDISON.

40 & 42 WALL STREET.

NEW YORK, _____ 188

2

is provided with gaskets & stuffing boxes, and the chamber connected to an ordinary steam vacuum apparatus the air being continuously exhausted to 29 inch column of mercury. the residual air being thus rarified does not appreciably affect the perpendicular fall of the particles unaffected by the magnet, a ~~Disc~~ ^{Piece} G receives the gold & magnetic material & B is the magnetic material -

d is a straight fall box C is a revolving cylinder sieve, the fine particles from which fall into d and in passing downward are given a straight course, before leaving the mouth of d — as this has to be or is better to be placed near the pole of the magnet the magnetic particles in the ore are drawn to one side of d & clog it, but a bar of iron a is placed on the other side of such a mass & in such

THOMAS A. EDISON.

49 & 42 WALL STREET.

NEW YORK, _____ 188

a position that a counter attraction ~~off~~ balance
is obtained & clogging is prevented.

Claw - closed chamber

2nd closed chamber exhausted

3rd altering trajectory in closed space

4 " " " Vacuum space

5 - straightening fall box d

6 - Iron bar a

7 Rotating drive in closed chamber etc -

etc -

T A E

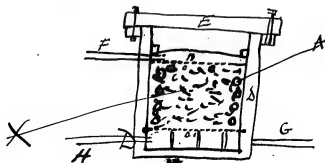
June 24 1887

July 1 1887

Dyer
Patent following:-

The object of this invention is to provide an economical and satisfactory process for separating fibres from the stalk surrounding matter in fibrous plants.

The process consists in packing the stalks stems etc after barking or splitting as the case may be in tanks containing a coil of steam pipe - then allowing a hydrocarbon to percolate upwards through the mass until the whole is covered with the liquid, the tank being closed. Water is passed through the coiled pipes at various temperatures according to the material to be operated upon; for plants containing fibre surrounded by pulpy material like the ~~agave~~ agave, the temperature should be about 130° Fahr but for flax etc a temperature of 175° is best. But many very pulpy plants



D is the tank holding a ton or more of material
 C' & C are plates perforated C' acting as
 false bottom, on this rests the material X
 on top of this is another perforated plate
 secured to a frame B & by which is mass
 of material is pressed down to occupy
 smaller space; an inlet pipe G serves
 to force the hydrocarbon upwards through
 the material. when the action is finished
 G is shut off & water is forced

through H. displacing the Hydrocarbon upwards & ~~from~~ from the material, The Hydrocarbon is drawn off through F & run back into the tank connected to G. to be used over again, Time must be given the water to displace the oil so that a very small fraction will be ~~waste~~ wasted if care is taken in this respect the oil will perform an almost infinite amount of desulphurization thus cheapening the process -

Claim process of separated fibres from the plant by steeping in a material insoluble in water -

2nd Use of a hydrocarbon -

3 Heat,

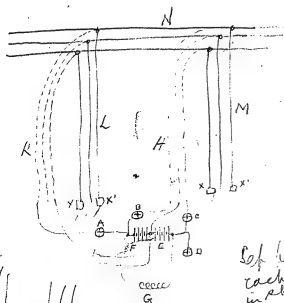
4 - displacement,

5 - the apparatus -

— July 1887 —

Ordinary temperature will answer: after 1 to 3 weeks the action of the hydrocarbon liquid is such that it displaces the water from the material surrounding the fibres, & destroys all the adhesive properties so that when the material is taken from the tank, running water will carry off all the pulpy matter and leave the fibres perfectly clean. They will not be injured in the slightest by the operation, whereas by rotting, hackling & use of acids & alkalis as is now the case the fibre is very much broken and weakened. Almost any liquid of the nature of a hydrocarbon, which is insoluble in water will answer for this reaction, but I prefer to use petroleum oil being cheaper & as good as any. ^{insoluble in water} Oxygenated Hydrocarbons Biphosphide Carbon ~~etc~~ & many others can be used —

Ref - ① Sept 5/31
Patent



Left side in
each one
in sketch



Improvements in methods of indicating
Electric pressure in Central Electric Light
Stations =

2

The invention consists in the employment of a standard battery giving the same electromotive force as that required at the ends of the feeders. Combined with several sets of pressure or return wires, multiple and across such battery through galvanometers A B C D. The battery is so connected that it gives a constant pressure in the wires that due to the dynamo ~~the~~ so that when the pressure at the pressure wires is 100 volts positive the standard battery will give 100 volts. K & have no. Current will pass through the galvanometers A B C D & they will stand at Zero indicating that the pressure at the end of the feeders K M is correct, but if the load on the mains N decreases or one of the feeders

3
and in the other - and rises to say 101
Volts, then there will be a current due
to a potential difference of one volt
& this will deflect the indicator it
may then be brought back to zero
by means of the feeder regulator
X X' a Resistor G is placed
around the battery to keep it in
good action & by this means the
accuracy of the results do not depend
on the indicating apparatus which
needs need not be delicate and a
deflection of several scales may be
had due to a difference of one volt
~~and~~ The maximum difference that is
possibly obtainable in current is
obtained by this method, hence
friction & other defects which render
ordinary indicating apparatus
so liable to ~~the~~ incorrect reading.

owing principally to the ~~late~~⁴
necessity of great delicacy
is obtained - As all indicating
apparatus is originally standardized
by the battery it follows that a
properly constructed battery is the
best possible device for securing
constant pressure in a station
over a long period of time -

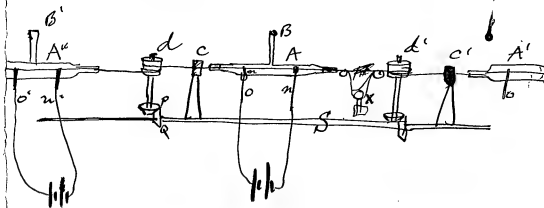
The battery I prefer to use is
the ordinary gravity battery with ^{moderately}
pure zinc & sulphate of copper

Do not make Broad claims for
this method -

E

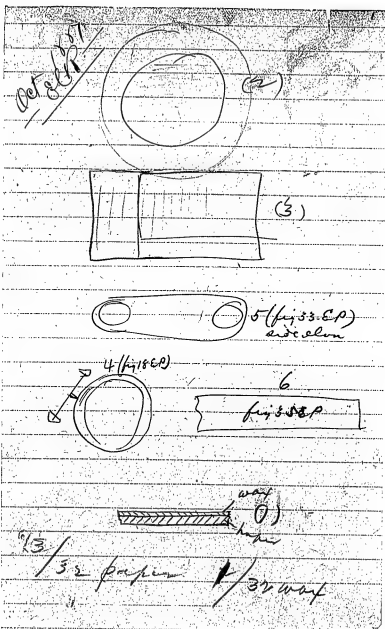
736

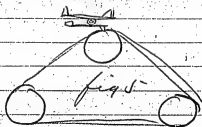
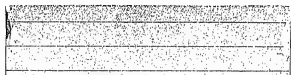
You remember I have two
 applications in for drawing
 wire — one for annealing by
 a current and one by gas heat
 while wire is in a chamber —
 Both these have objections —
~~I take out for~~ put in ^{new} application



A is a glass tube filled through B with Hydrogen or other reducing agent ^{under pressure}
The wire passes through stuffing boxes at the ends - to the left it passes through the die C it is drawn along by the revolving drum d by means of the shaft s & bevel gear p q -

O & n are contact springs which allow a portion of current to pass through the wire & heat it up to the annealing point. Oxidation being prevented by the pressure of the reducing gas which serves to reduce any suboxide formed on the metal while passing through. The air = a weight x serves to allow a little slack to compensate for the slightly different speeds required between each gang - This process is for drawing exceedingly fine wire not now possible except at great expense & not very great lengths - strong clamps & soak - Edw in





Recd Oct 22, 89
H.W. Wiley

Orange Oct 20/89

The object of this invention is to diminish the amount of Copper in the distributing system of Central Station Electric Lighting so that large areas can be supplied from one central station without the use of large amounts of Conducting material and without the intervention of apparatus wasteful of Energy. The ~~loss~~ direct connection of the translating devices, The Consumption of Energy being in proportion to the number or size of the translating devices,

In ~~a~~ previous patents, ^{No 2} I have shown a method in what is called the 3 wire system whereby the two sides of the system are balanced by carrying ~~either~~ automatically or ~~each~~ by mechanically controlled electrically from the

$$\begin{array}{r}
 273 \\
 \hline
 600 \\
 163800
 \end{array}$$

$$\begin{array}{r}
 4 \overline{) 2.675} \\
 \underline{.667} \\
 .667
 \end{array}$$

$$\begin{array}{r}
 185000 \\
 \underline{.67} \\
 1295000 \\
 \underline{1115} \\
 12395000
 \end{array}$$

$$\begin{array}{r}
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 \hline
 1146600 \\
 89828 \\
 \hline
 109746.00
 \end{array}$$

$$\begin{array}{r}
 156 \\
 \underline{900} \\
 140400 \\
 \underline{.67} \\
 9828.
 \end{array}$$

$$\begin{array}{r}
 184 \\
 \underline{700} \\
 128800 \\
 \underline{.67} \\
 9016 \\
 \underline{7728} \\
 85296
 \end{array}$$

$$\begin{array}{r}
 8424 \\
 \underline{74058}
 \end{array}$$

Central station, a group of lamps to be thrown over from one side to the other, so that if it is found that one side has more lamps on than the other a definite portion may be ~~be~~ disconnected from ~~some~~ ~~the~~ ~~the~~ overloaded side & fed from the light loaded side so as to effect a balance.

in the patents spoken of -
The present invention is an extension of the same idea & ^{more} applicable to large & very extended systems of distribution and on 4, 5, 6 or more wire systems, it being essential in any extension of the 3 wire system to a 4 5 or more wire system that the balance should be very even as above a 3 wire system that the difference of pressure due to out of balance is in certain conditions not regulable by varying the resistance of the feeders

and as it is a great saving to use very small neutral wires in the feeders it is necessary that the balance should be such at all times that only a comparatively small current shall ever pass through them; Hence it is essential that in a large area a large number of ~~switching~~ groups at different points should be capable of being connected to any circuit without running a great number of separate circuit to the switching mechanism ----

The invention consists in placing a number of boxes throughout the district containing switching mechanism ^{each} controlling all the lights in a certain house or store. The boxes are placed preferably on the poles like fire alarm boxes --

4

Each box has two electromagnets,
one large the other small -

If there are 20 boxes a circuit
of ordinary telegraph wire
runs from the station through all
the small magnets, Fig 1,
another circuit runs through
all the large magnets, the 2 Extreme
Ends ~~of~~ are connected to the
outside wire of the system,
at the station there are two
~~two~~ dials "C C" worked by magnets,
2 Keys K K' serve to open & close
the circuit, R is an adjustable
resistance, the two circuits join
& are connected to the other side
of an dynamo thus giving 100 volts
to each circuit,

Fig 2 shows the switching mechanism
it is a ratchet wheel with a greater
number of teeth than there are boxes
in the circuit - & the click.

At the magnet lever K the retracting spring

5-

L the Limiting screw M the small magnet, n the backlash click; C the locking click stop, on the shaft carrying the ratchet is a disc b with a notch & the notches in each disc in every box is in a different part of the periphery of b, ^{except at one point where the disc is notched to be balanced} f is the Union arm g the Union stop pin - m is the Union releasing arm connected to the lever S of the large magnet M.

Thus if the Operator at the Central Station taps the Key of the small magnet circuit a number of times the rotation of the Ratchet shaft will cause the Coarse screw to advance the Union arm up to the Union pin & stop further rotation - now by depressing the Key of the large magnet circuit once the arm m throws the arm f upwards & a spring pulls it back to the other extreme of the screw on the shaft Thus all the

6

Ratchet mechanism controlled
by M in every box can at any
time be brought to a definite
point & be in unison -

When in unison there is no notch
opposite R on S in any box -

but there is sufficient space for
R to work from its position adjacent
to the periphery of the wheel
to trip the Unison mechanism -

Having brought all the M
mechanism to unison - The
M' mechanism can be brought
to unison, the disc may be advanced
to such a position where the notch

Q is opposite R of ^{every} box ~~and~~

~~but not in other boxes~~

The large magnet circuit is now
worked and as T is a similar unison
the lever T will soon reach the unison
stop point & stop further rotation
on working M. The lever P of the
release the unison & both magnetic

7
systems are in unison. ~~some by act~~
~~as one tooth further the watch~~
~~in box I is opposite~~

Supposing all the boxes have both
mechanisms in unison, The Customer
or house are connected permissively
among the boxes: No 1 box when in
unison has the house on No 1 current
No 2 box on No 2 current & so on
so that in practice The houses will
be connected to balance each
other when the mechanisms are all
in unison at one point,

about 1 box for every 15 houses
will be enough in practice (10)
10 lights controllable will balance
every 150 lights uncontrollable,

3 is the switch ratchet, y the click
1 & 2 are rings: one ring connect to spring
4 & one to spring 4'. The spring
being split around the shaft so that two
halves are electrically insulated
from each other - on these rings.

8

But two springs W.V. wires from these springs pass to the house where the lamps or other translating devices are connected in multiple and — 6 to 12 are contact plates on a rotating disc 13.

These plates are connected to the 5 wire system as shown in Fig 3, by the rotation of the switch shaft the groups of lamps on W.V. are successively throw on the 4 circuits, by advancing 4 points, owing to the use of an electrically he motor. The other half of the revolution cannot very conveniently be used hence to bring the group of lamps back to the 1st circuit. The mechanism is not allowed to rest on the other 4 plates but the arm 4' is brought back to their original position.

~~fig 4~~ 9

fig 4 shows the box on the pole
1 2 3 4 5 are the wires of the 5
wire balance system X X are
insulating pieces in the circuit
to cut in the large & small magnets
in circuit, 8 & 9 are pressure
wires etc -

fig 5 shows Unison mechanism
& Disc 6 with watches in
defunct & return

Now supposing the system balanced
& all mechanisms of boxes at
Unison - ampere meters fig 1
on neutral wire shows no current,
now supposing a ~~consumer~~ consumer
shuts off his lights on circuit No
1. the balance is destroyed & a current
passing through the wire of the neutral
wire to station deflects the ampere
& shows say ~~2~~ 3 lights -

or several customers ¹⁰ whose
aggregate amounts to 30 lights
have shut off —

The Regulating Operator, looking
at his dial C & C' fig 1
works the Key and working the mechanism
as previously described disconnects
by ~~3 boxes~~ 2 or more boxes
sufficient lamps from the other
3 circuit & connects them to circuit
No 1 to balance the system
which is immediately apparent
to him by the action of his amperometer.
This mechanism can be used to
disconnect Contract customers
feeders at a distance, Transformers
& in fact every kind of apparatus
I do not wish to confine myself
to putting the boxes in series as
all these small magnets may be
worked in Multiple arc ~~on~~
one circuit & the large magnets ditto —
in fact both magnets may be

polarized & put in or across one
current & a ~~polar~~ current of
one polarity intermitted with
one magnet & the opposite
current intermitted with the
other magnet,

Instead of the Keys - a rotating
transmitter with break wheel &
deal as in printing telegraph
may be substituted.

The feeder as a whole has
its general pressure regulated
by feeder regulators in the
ordinary way -

Claim the Earth -

{
Lion

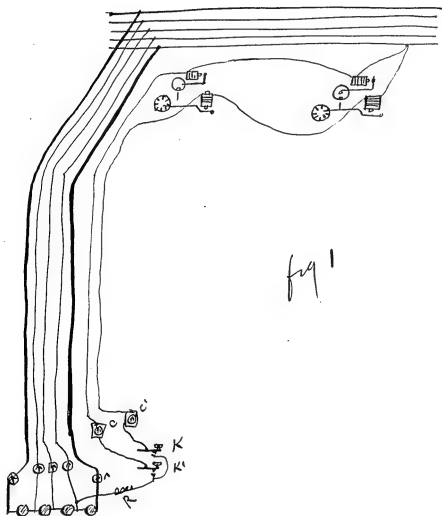


fig 1

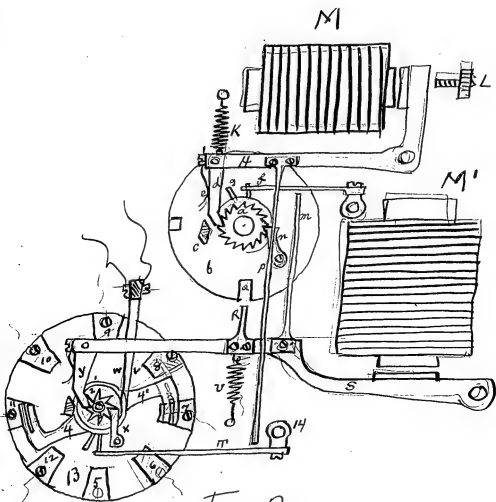


Fig 2

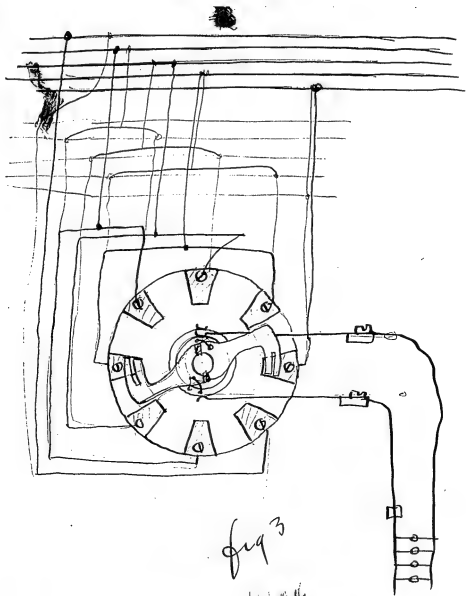


fig 3

Rub out the pencil marks

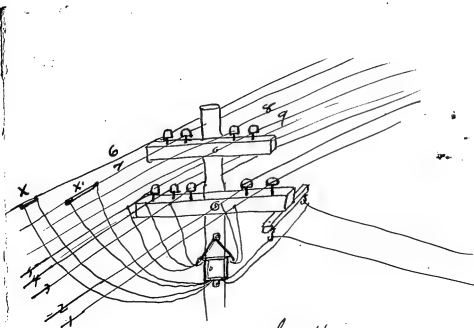
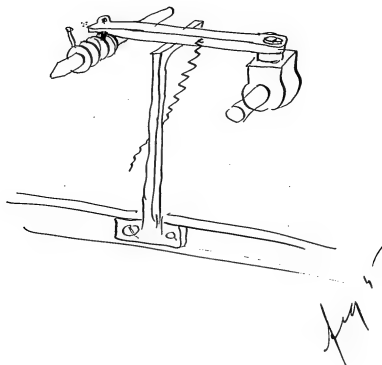
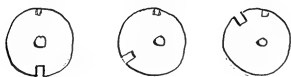


fig 4



Opisth. 74 body about
vacuum deposit.
whole rotated
Dismal to can't
spark a.s.s
New appon

9 Eng. Prot. 1.

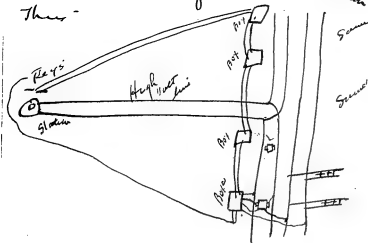
From the Laboratory
of
Thomas A. Edison.

Reckless 189
M. L. S. L. S.

Orange, N.J., Oct 29 1887

Dick

Please fix up another Case
with the shifting ratchet wheel
device & apply it to transformers.
The object being to disconnect & connect
transformers as the load diminishes
or increases all from the station
Thurs -



From the Laboratory
of
Thomas A. Edison.

Orange, N.J., _____ 1888

2

You know the trouble with the
attenuating system is that while
the sale of light is usually all
in 4 hours. The loss in the
transformer which is 8 @ 12 per
cent according to construction
goes on during the whole 24
hours & the losses in some cases
in the transformers equal the
sales so you see it is a great
strife in the direction of economy
to connect & disconnect transform-
ers as the load varies - get a strong
claim on this hour on the
great economy etc as I am certain
they will run a foul of this
before long - Bill to Light Co
as its for protection purposes
Edison

From the Laboratory
of
Thomas A. Edison.

Orange, N.J. Oct 29 1887

PS -

You might show separate
circuits running to each
transformer from station with
magnet to central switch
also a hand switch at
each transformer to
disconnect -

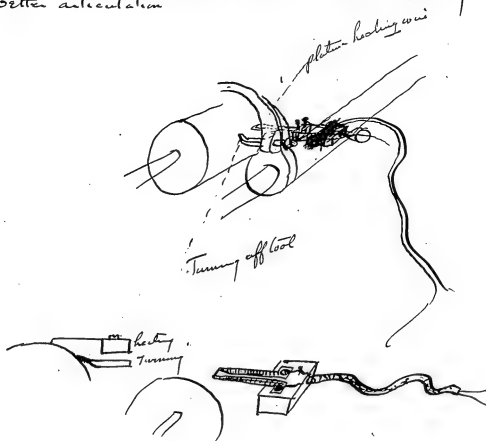
also a time clock controlling
a switch to disconnect at any
prearranged time - If this
can't be put in one patent
make 2

E

Orange - Nov 17/87

Dyer -

Be sure to incorporate the following in
foreign & US patent - it works beautifully
diminishing the roughness of the surface & giving
better articulation

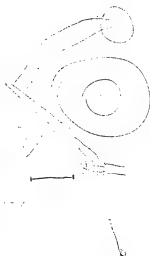
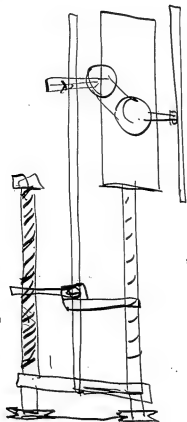


Both the turning tool & heating jacket
 are adjustable, I find that the wire is
 kept sufficiently hot by using a shunt
 around ~~the~~ ~~two~~ ~~of~~ ~~the~~ ~~two~~ of the 4
 Cells of the battery & the speed of the
 motor is not diminished by reason of it.
 It should be just hot enough to melt the
 outer surface of the wax, it obliterates
 the tool marks & gives a burnished
 like surface & is a great improvement.
 It can be cut out of sheet or a short
 length of #008 wire used.

I have better mention that an Aluminum or
 Silver wire of $\frac{1}{8}$ dia reduced to $\frac{1}{32}$ at the wax
 may be used & heated continuously by a
 miniature alcohol lamp & the
 traveller may be used the heat passing
 to the point & wax by conduction.



For view by
R.A. Dyer

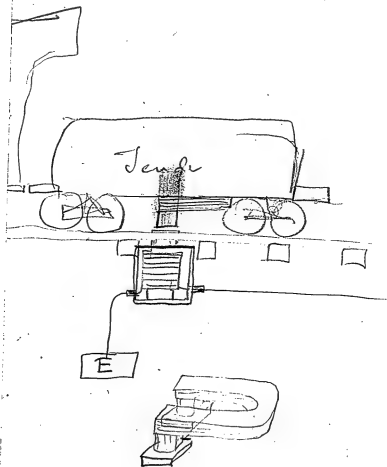


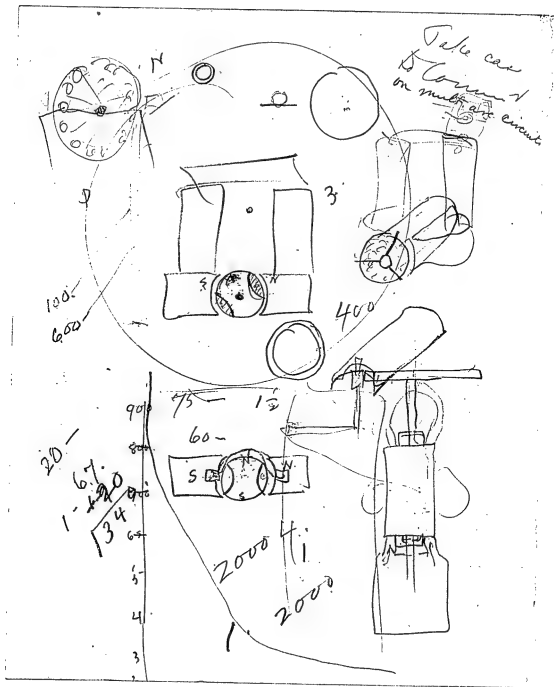


EDISON LAMP COMPANY.

THOMAS A. EDISON, President.
FRANCIS B. SPENCER, Gen'l Mgr. & Treas.

HARRISON, N. J., _____ 188

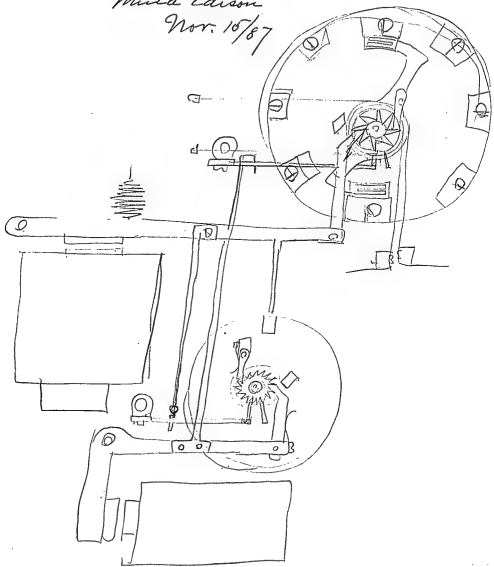




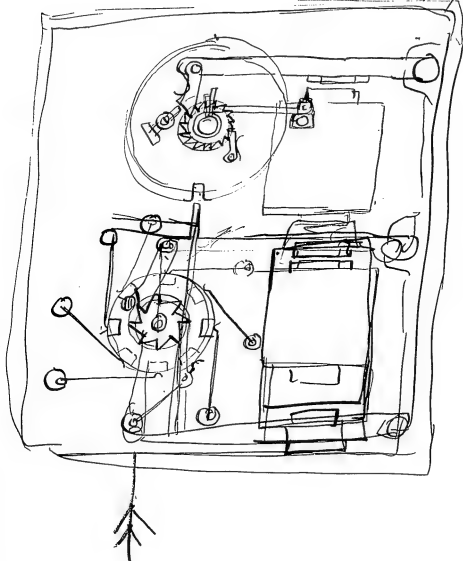
look
up type -
white part.

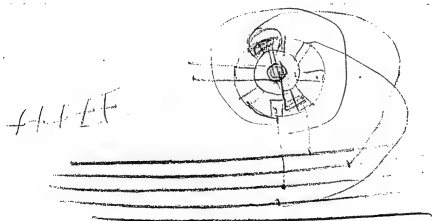
Printer

Maria Edison
Nov. 10/87

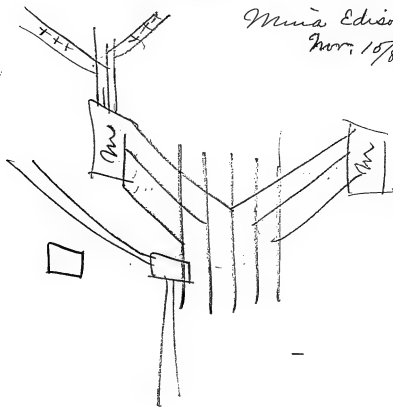


Maria Edison
Nov. 1880





Mina Edison
Nov. 10/87

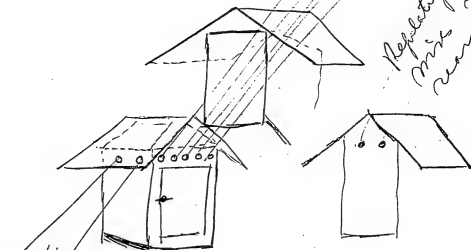


Maria Edison

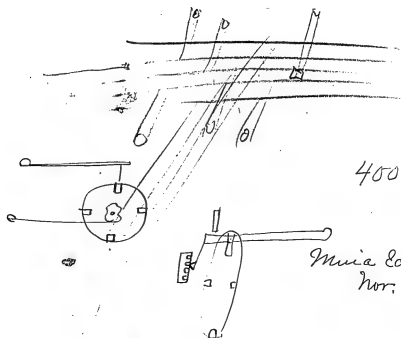
Nov. 10/87

Connection
5 miles
in front of box

Reflecting
Mist
near of box

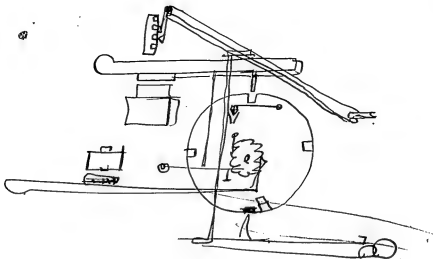


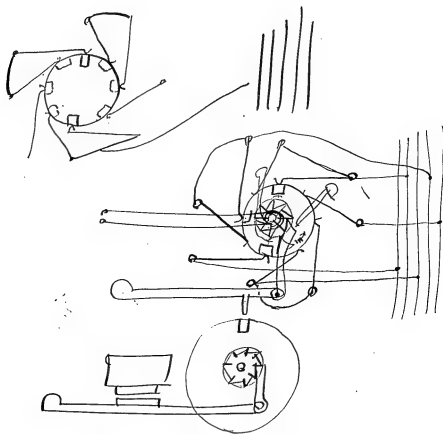
House Connection
at side



400.

Maria Edison
Nov. 1867

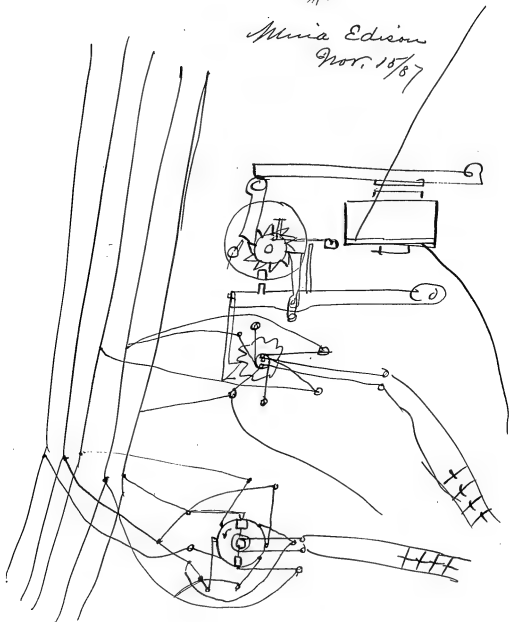


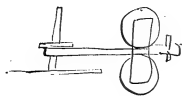
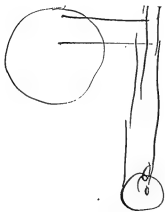


Maria Edison, Nov. 15/87

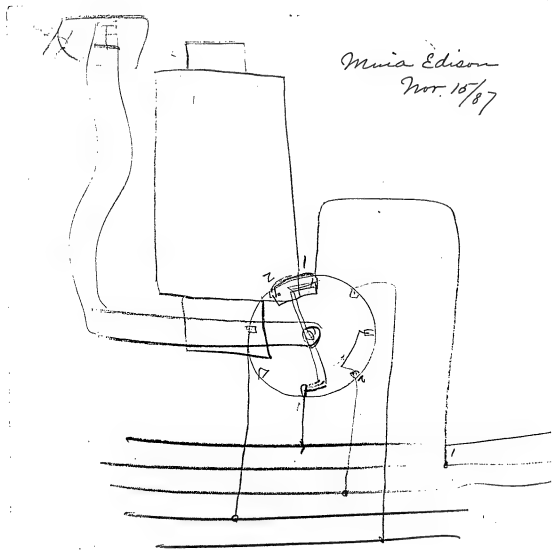
H H *

Maria Edison
Nov. 10/87





Maria Edison
Nov. 18/87



Mina Edison

Nov. 10/87



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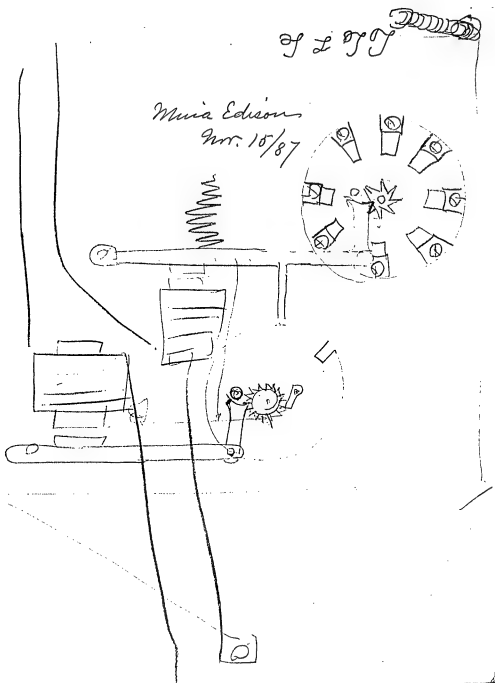
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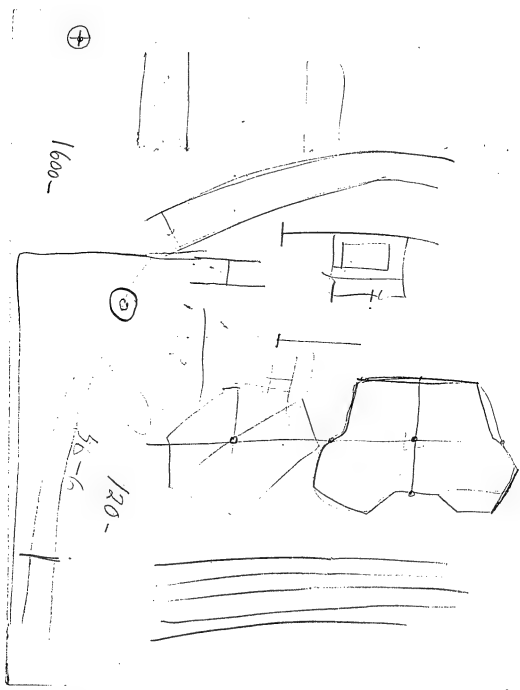
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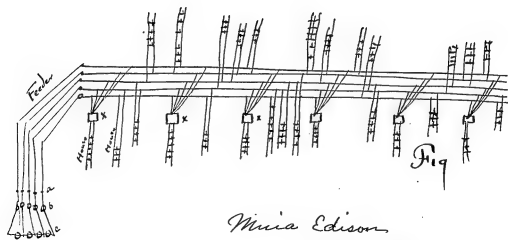
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of 2 2 2

Maria Edison
Nov. 15/87

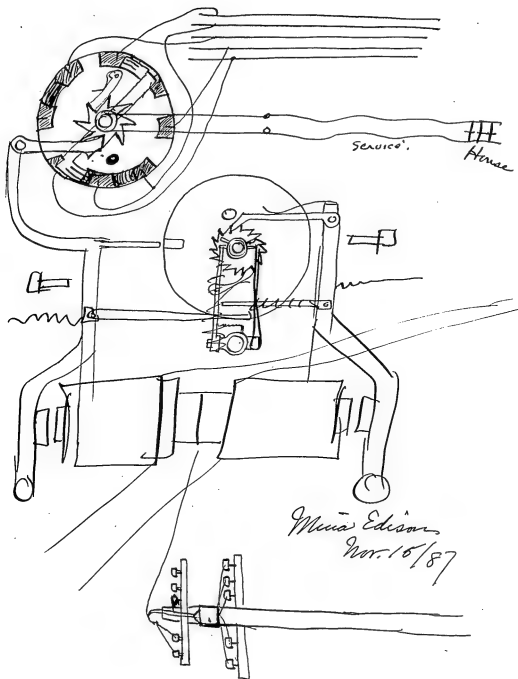


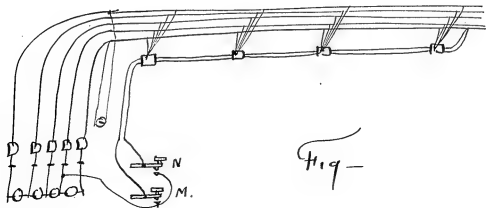




Mina Edison
Nov. 18/87





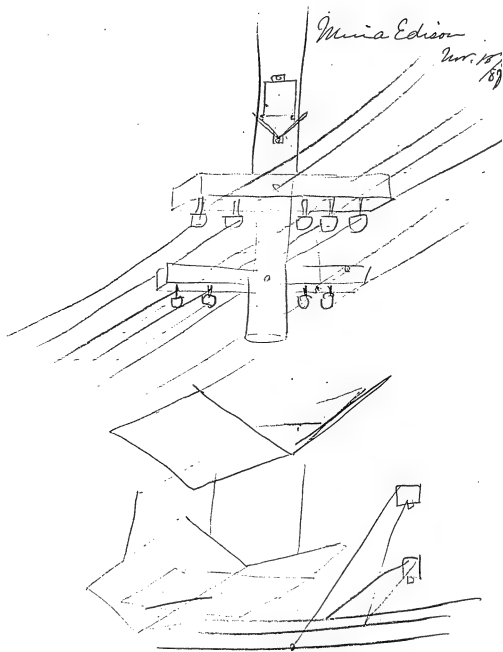


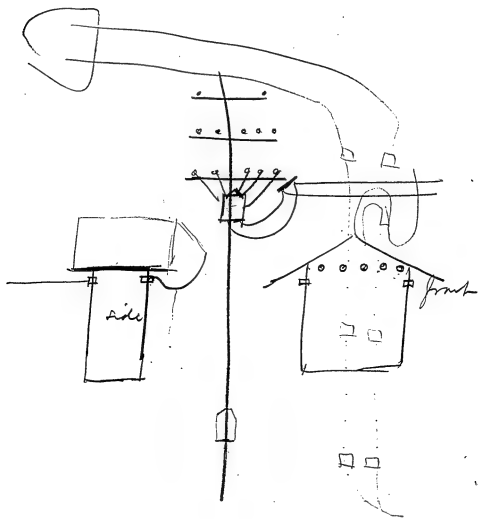
H. q. -

Mina Edison
Nov. 15/87

Maria Edison

Nov. 15 / 89

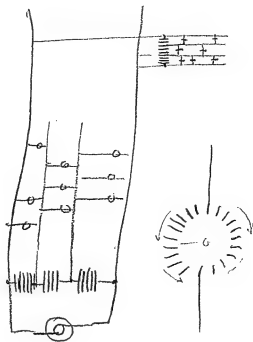




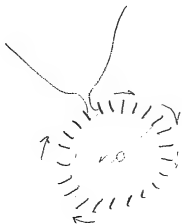
*From the Laboratory
of
Thomas A. Edison.*

*Maria Edison
Nov. 15/87.*

Orange, N.J. ——— 188



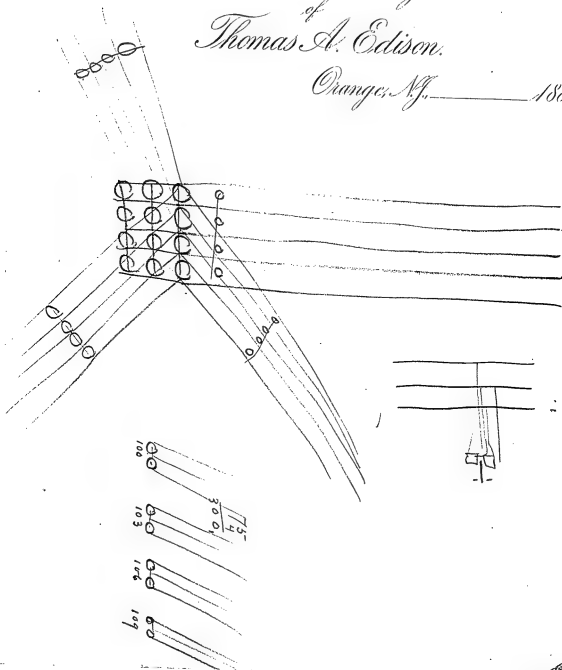
Maria Edison
Nov. 15/87



Call Address "Edison, N.Y. N.Y."

From the Laboratory
of
Thomas A. Edison.

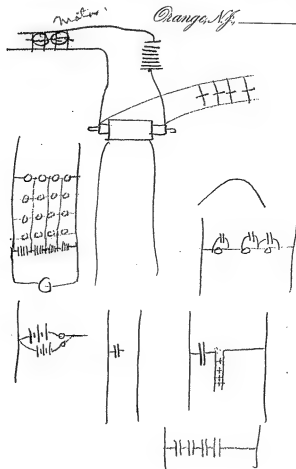
Orange, N.J. _____ 1888



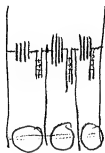
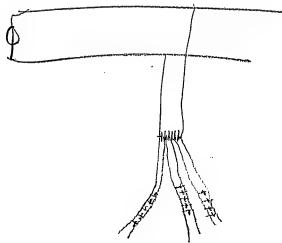
From the Laboratory
Thomas A. Edison.

Maria Edison
Nov. 18/87

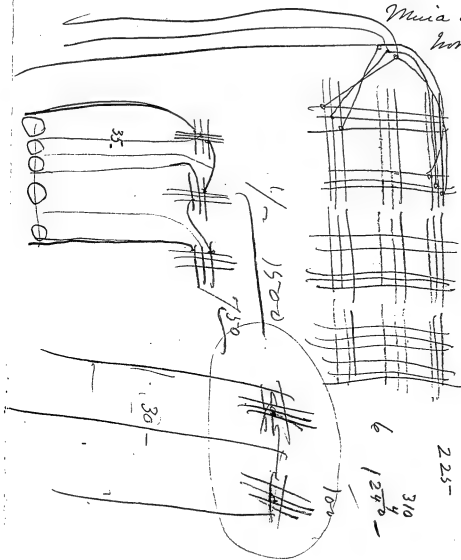
Orange, N.J. _____ 1888



Maria Edison
Nov. 15/87

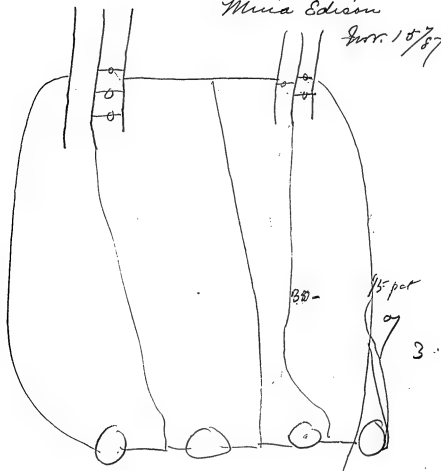


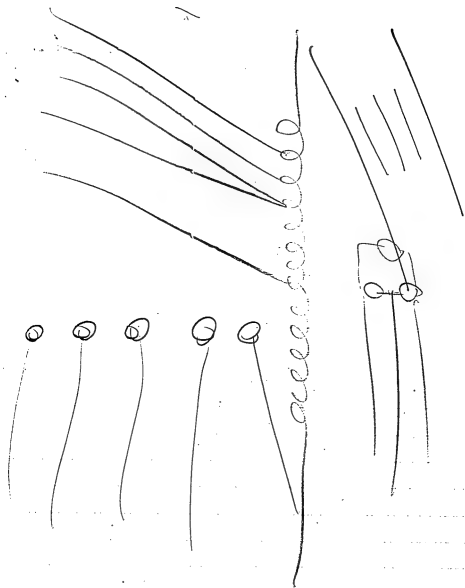
Maria Edison
Nov. 18/87



Maria Edison

Nov. 10/87





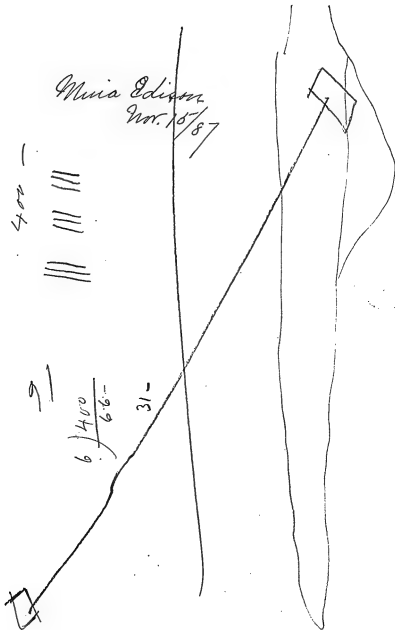
Minia Edison
Nov. 18/87

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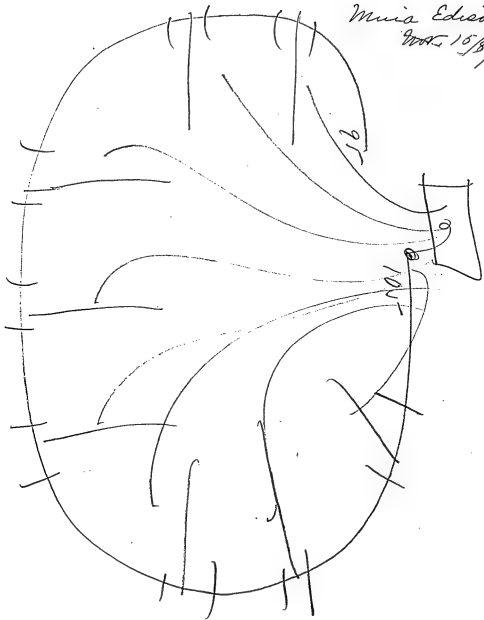
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6) 400
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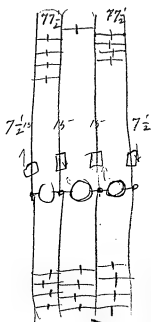
Maria Edison
Mar 15/87



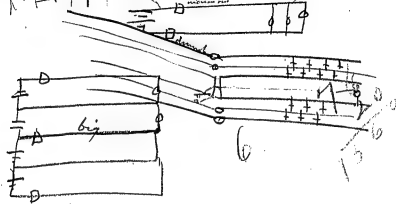
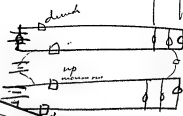
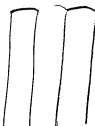
Call Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

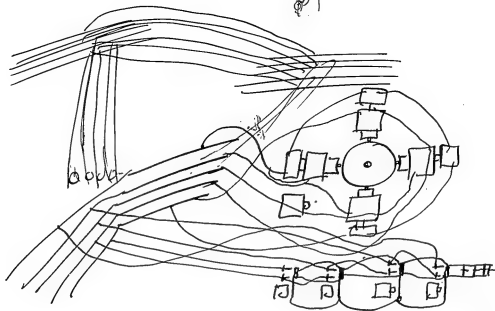
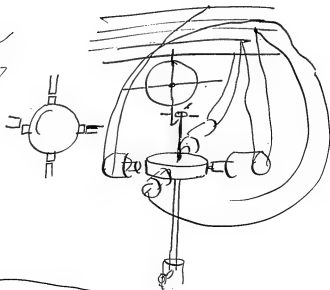
Orange, N.J., _____ 1887,

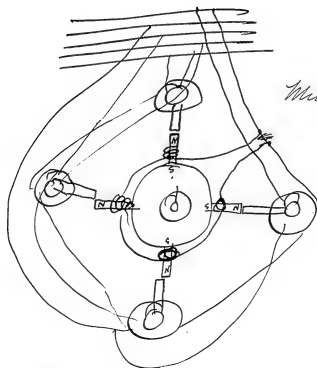


$$\begin{array}{r} 77.5 \\ \underline{15.5} \quad 2 \\ 100 \\ \underline{25.5} \quad 0 \end{array}$$

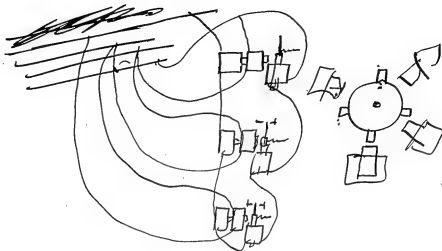


Wm. Edison
Nov. 29/87

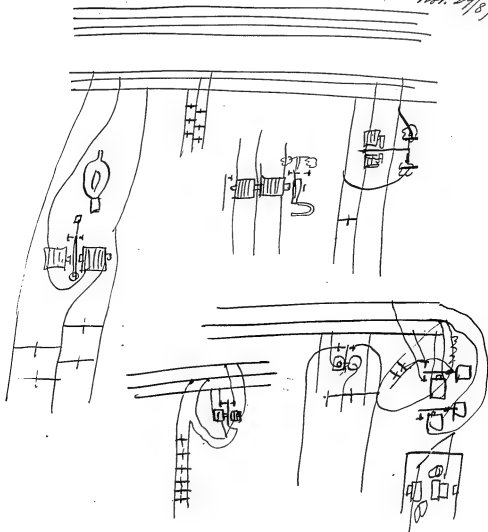




Wm. Edison
Nov. 29/87



Mina Edison
Mar. 29/87



Technical Scrapbook, Cat. 1153

This scrapbook covers the period January-February 1888. The entries are by Edison. Included are notes and drawings relating to phonographs, ore separators, lamps, a pyromagnetic generator, and a telegraph recorder. The name of Mina Edison appears as a witness on some of the documents.

Received Jan 6, 1888
Pat. & Dyer.

Orange Jan 4 1888

Dyer -

Here is something new Prepare an
Application Its on the line of the pyromagnetic
Dynamics -

The object is to transform the heat energy of coal etc
directly into electricity without the intervention of a
Steam Engine or other prime mover. The invention
consists in causing heat to expand rods tubes sheet etc
of metals or expansible material in such a way as to
open & close a magnetic circuit, which magnetic circuit
is surrounded with a coil of wire upon which the lines
of force acts inductively.

The invention further consists in arranging a number
of such simple devices together to obtain continuous
Electric Currents by commutating the Electric Current,
& alternately cooling & heating a portion of the
device, but continuously.
The invention further consists in various details.

Many attempts have been made to construct prime-motors by utilizing the Expansion & Contraction of solid matter, but the expansion & contraction between ~~some~~ practicable limits is so small that mechanical means are of no avail to obtain motion sufficient for practical purposes; The problem is to get motion or energy capable of use from the exceedingly small movements due to expansion; I have solved this problem and am enabled to utilize barely perceptible motion for obtaining light ~~light~~ & power for running machinery with great economy of fuel; I have found that the resistance of air to magnetic lines of force or stress is about 1200 times that of soft iron, That stout short magnets divided into two parts with their faces accurately ground to fit together like two surface plates, and magnetized nearly to saturation can scarcely be pulled apart by the direct pull of two Oxen, but if the faces are separated two of an inch the attraction is reduced enormously on account of the sudden interposition in the magnetic circuit of ~~a~~ a layer of air whose specific resistance to magnetic stress is 1200 times greater.

If one $\frac{1}{2}$ of the magnetic circuit be covered with wire it can be magnetized to saturation, while the other $\frac{1}{2}$ being also coiled with wire, this coil will receive a powerful induction wave at the moments when the ~~force~~ of magnetic circuit is opened or closed too of an inch or less. Which movement is produced by the expansion of stretched metals. By this means I am enabled to obtain the full value of the almost inevitable force of expansion in coils for practical purposes.

Fig 1 shows one single unit of the Generator. K K ~~with~~ are sheets of very Nickel secured to the End piece #1. L being secured to the Central hub of the Generator. The magnet & Central hub are rigidly connected together by radial arms shown by dotted lines fig 2. A is the magnetizing coil. B the generating coil. The magnetic break occurs within the helix B at c, d. The part of magnet movable ~~is from~~ has a bearing at N. F is a nut connected to a right & left handed tightening screw for adjusting the

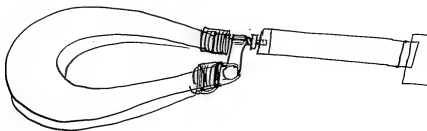
4

tension on the Expanding device,
 Fig 3 shows a section of the generator over
 a furnace; ~~the~~ X fig. 3 + 4 is the revolving
 guard plate etc. Dyer the action is the
 same as pyromagnetic generator.
 instead of having commutator wheels right over
 furnace I use Spur gear & take the Com device
 away from the heat, both shafts making
 same revolutions allows me to do this
 I have shown no smoke stack, or regeneration
 device mention that these would complicate
 the description & will be the sub matter of another
 application.

When no heat in furnace the contraction of K.K.
 etc. opens magnetic circuit & the charging of
 the magnet ~~is~~ is insufficient to draw the ~~the~~
 circuit closed but when the furnace is started
 the heat soon reaches a point where the
 expansion is sufficient to allow closing
 whereupon we get a powerful induction
 wave in B

5-

By starting the ^{induction magnet} ~~field magnets~~ with a small battery they may be made to build up & it may be disconnected, Of course horse shoe magnets can be used



Mention that I do not confine myself to sheets of metals for expansion but tubes with thin walls, wires, and other forms can be used - fig 6 shows

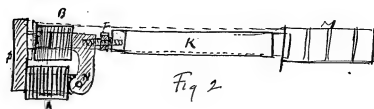
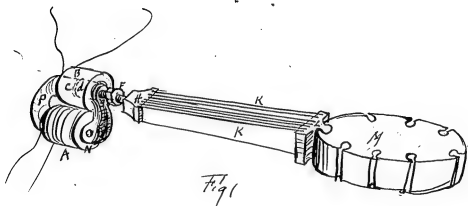
The method of using liquids the expansion being produced by hot water or steam through copper pipes coiled in a small closed chamber with piston, the coils being immersed in the liquid used

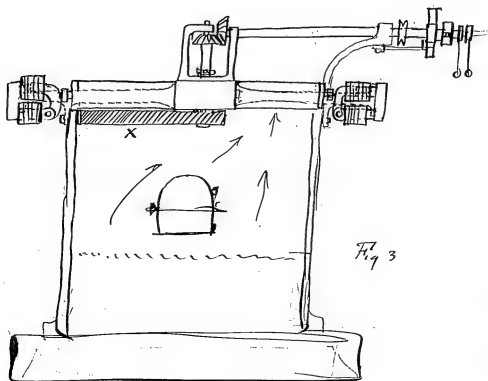
6

a number of fig 6 being arranged with a rotating wheel which serves to open & close the steam Cocks of the various devices successively. The details of which will be shown in another application

Dyer- I suppose we had better call this the Pyromagnetic Dynamo, (18) Improvements

Very Broad Claims ought to be obtained
The only instance where currents have been generated by breaking actual contact between iron & armature is in the Breguet Exploder but this was done by hand & needed an inch or more, doing it through ^{comparatively} infinitely small ~~new~~ distances by Expansion is I think entirely new. The use of a magnetizing coil is new. The arranging with Commutators is new. The devices are new, The Improved Expansion device with mag is new all the devices are new. Let me see what you can do — Edison





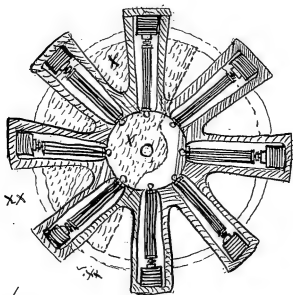
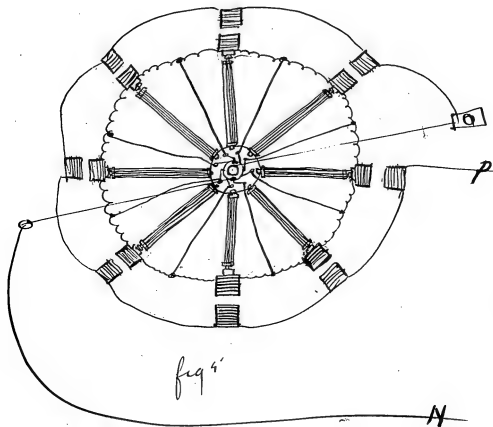
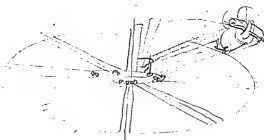
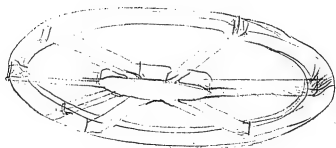


FIG. 4





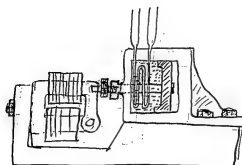


Fig 6

"
Res. Jan'y 1888.
R. A. Dyer

Orange N.J. Jan'y 17/88

Dyer
Patent,

The object of this invention
is the economical production of perfect
Phonogram Cylinders —

The invention consists in the
method of moulding the same and finishing
to a perfected article,

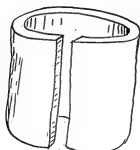
Cylinders formed of wax, gums or mixtures
of the same when poured from a well state
into a mould contract enormously on cooling
especially those mixtures suitable for
Phonogram Cylinders hence it is a very
difficult matter to mould hollow tubes or
cylinders wholly of ~~the~~ such material,
The great shrinkage causing the same
to crack notwithstanding various devices
Employed — The moulds are also complicated
& expensive and efforts must be employed

To abate the great expense for apparatus and to produce cylinders of great perfection, I divide the circumferential Continuity of the cylinder by a narrow strip placed in the mould, on pouring the liquid in the same the same is not continuous around the circumference on cooling. Instead of the cylinder contracting inwardly & thus cracking it contracts both directions from the dividing piece, ~~which~~ without the slightest danger of distortion or cracking. It may be left to cool in the mould. When cold the ~~inner~~ shell has contracted in thickness sufficiently to be easily removed from the mould. As it comes from the latter there is a break of about $\frac{1}{4}$ of an inch ^{per inch} due to contraction. The cylinder is then put on a mandril or cylinder of metal, ^{temporarily} until it fits. End pieces are fitted at the extremities of the break. This break is poured full of

hot wax which perfectly fuses to the
edges of the break, quickly cools & the
cylinder is made continuous and ready
for the shaping lathe. The cylinder
is clamped lightly in a chuck & a
cutting tool set on a taper bores it out
to a uniform taper corresponding to the
taper of the cylinder of the phonograph
afterwards the cylinder is placed on a
mandrel & its face is turned off true.
The phonogram blank is now ready for
use —

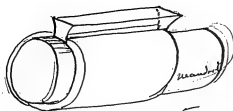
Will it be necessary to take out 2 patents.
This is good thing so draw broad claims
These terrible contractions don't seem to have
been encountered in any other industrial
operations,

Edison



break

1st operation

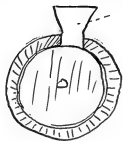


2nd operation



dividing piece

outside of
mould
inside of
mould



pouring funnel

Revised July 14/88
Patented
Dyer

Orange NJ Jan 10/88

Dyer Patent,

Improvement in Thermoelectric batteries

Object of this invention production of
Electricity direct from heat,

Invention consists in rotating ^{or moving} the
two Thermoelectric metals

2nd Consists in heating one
Element direct to a high temperature
while the other is only heated
by Conduction,

3rd Keeping one Element at a
high temperature at its contact
surface & the opposite metal
at a low temperature where
the two come in contact &
maintaining these great dif of
temperatures continuously

~~As the ~~current~~ Electro-motive~~
~~force depends up the difference of~~
~~temperature.~~ The small wheel is
 say of Copper Melange of Iron
 a blow pipe flame for illustration
 keeps the Copper wheel red hot,
 while the iron wheel being a
 poor conductor of heat & being exposed
 to the air while in rotation remains
 comparatively cool, any loss of
 heat from the Copper wheel is continuously
 supplied by the flame. The large
 wheel is run by an Electro-motor
 supplied by current generated or
 by other motor. The small Copper
 wheel being in bearings on a movable
 arm is held against the wheel
 with considerable force & rotates
 with it. Spring contacts serve to
 make good contact with the respective
 shafts -

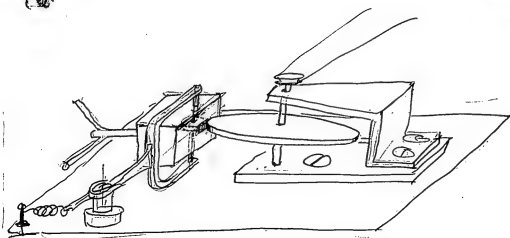
3
fig. 2. Shows several accessory wheels
of Copper which are not heated but
serve to keep the iron wheel cool
at the same time generate a
Current while cooling which can
also be utilized but which is small
compared to the Current from the
heated wheel - It is obvious that
many modifications can be made
and that any of the suitable Thermo
Electric metals may be used,
The application of this invention for
various purposes will be the subject
matter of other applications -

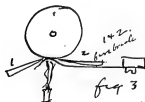
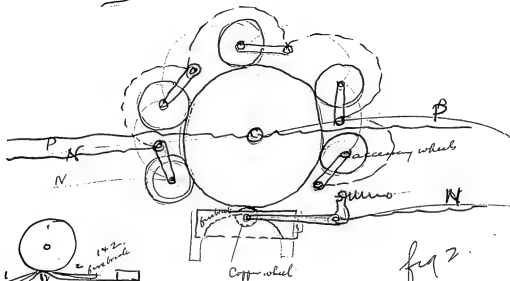
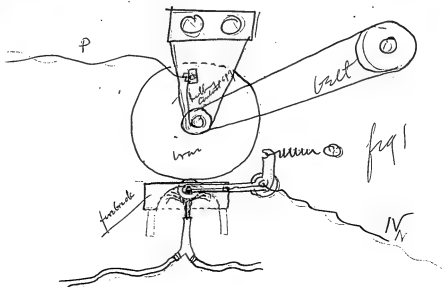
Dyes: rotating ^{or rubbing} Thermo surface is I think new
2nd Heating one continuously & keeping
the other at a lower temperature at points
of contact is new

Fig 3 shows rubbing
Contact heated on one side & arranged so flame
or copper not in contact doesn't give heat to wheel
by conduction or radiation.

This arrangement gives
T.E.E.

35/100 of a Volt -
Clean Everything with a brush
or a wire
patent





Recd Jan^{16, 88}
N.Y.
Dyer Patent.

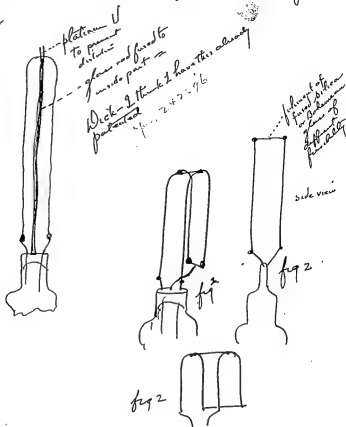
Orange Jan¹⁴ 1887

The object of this invention
is to construct incandescent lamps of a candle
power generally in use 16 Candles of very
high resistance, so that high electrical life force
can be used and thus diminish the investment
in the Copper Conducting wires as the manner
now very well known.

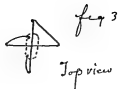
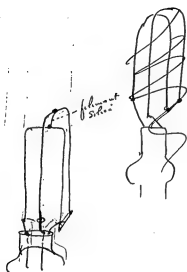
The invention consists in the employment of the
single very long thin filament of Carbon supported
in the center of the incandescent part or the
use of ~~two or more~~ ^{two or more} filaments ~~in the same part~~
~~or a carbon filament to be~~
~~or a carbon filament to be~~ mechanically connected to
~~one~~ ^{one} ~~another~~ by a new conducting medium

It is ^{now} well known that there is a very considerable
attraction between the electrified surface of
the glass globe and the filament which of
course is charged statically in the opposite
way and this tends to draw the filament
if very long & flexible towards the glass.
distorting it in many cases causing the

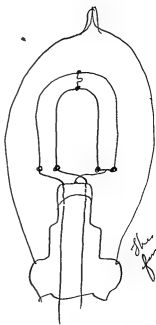
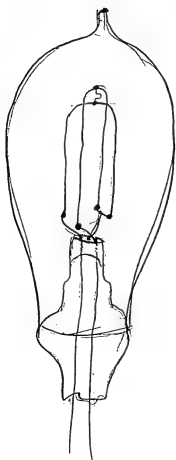
filament to touch the glass when the lamp is destroyed, On the other hand when we ~~destroy~~ put this filament in the globe the mutual repulsion & attraction of the currents traversing the filaments increases the distortion. The object I have in view is the prevention of this distortion,



These filaments of insulating material are secured to the carbon by a Carbon joint, filaments of pure Silica melted by the Oxyhydrogen blow pipe - ~~A filament or thread of alumina or the most infusible Bohemian glass~~ can be used without danger of melting. The small quantity of Carbon fast at the junction of the filament of Carbon + thread of insulating material serves by its increased radiating surface to reduce the temperature at that point below the fusing or softening point of the glass -
The form I prefer to use is thus



filaments at right angle
one $\frac{3}{16}$ inch longer than
the other + connecting
thread between
This makes a very stable
Combination,



*This is another
form —*

*This scheme to Gettin, the filament of
Silica is bent & to allow of expansion*

These various forms especially figure 3
gives a very pleasing form of radiating
surface very much superior to the
method of getting a long filament by
coiling as is sometimes done; another
advantage ~~off~~ over the coiling arrangement
is that the filament is not unequally
heated by radiation from one spiral to
another, that better filament can be
made in the carbonizing process with
filaments not coiled,

Make good strong claims in view of
what I already have -

Claim the mechanical nonconducting support
for holding two or more filaments to prevent
distortion, The Right angle arrangement,
~~the~~ The use of a paste in this connection -
Now Dick here is a fine point. No one but
myself has ever constructed a lamp giving
200 volts across its terminals within a
single vacuum chamber.

.. All makers used flashed Carbons, this
would bring Volts down to 125 or so
by using an unflashed Barbur I can use
200 or more, No one before myself has ever used
two filament to get 16 Candles of unflashed
Carbon in one vac chamber - No one has ever
been able to make a 16 Cp lamp requiring
200 Volts to give 16 Candles -

Isn't it possible to Cook up a claim that
will hold lamps of this Character - Think
it over & let me hear from you -

E

Rec'd Jan 1888
R. D. Dyer

Patent - Orange Jan 17 1888

The object of this invention is to produce a good material for the Phonogram Cylinders which will give Loudness & clearness of articulation, + freedom from excessive ~~or~~ scraping sound. I have ascertained from a large number of experiments, that to obtain these results the ordinary waxes of Commerce are not sufficient. ~~They are too soft to use~~ ^{as the hard ones are mostly too soft} and it is essential to use a hardening material mixed with them. For this purpose I have discovered that 'Carnauba Wax' is the best hardener for mixing with the various soft waxes, and it may be used in various proportions up to the point where it is such quantity as to cause ~~excessive~~ scraping sound. Carnauba Wax itself is very hard & brittle & utterly unfit for material for phonogram. ~~Whichever~~ The various quantities of Beeswax Spermaceti, Ceresin may have from 10 to 50 per cent ~~of~~ of Carnauba Wax mixed with them.

without practically increasing the scraping
 sounds in the phonograph. The increasing
 percentages continuously increasing the volume
 of sound clearness of articulation &
 convenience of turning off the face of the
 cylinder up to the point where the Carnauba
 wax is in such excess as to remove its presence
 by scraping sounds. Some waxes such
 as paraffine cannot be made to disguise
 the hard scraping sound producing properties
 of Carnauba, But beeswax perfectly
 disguises it up to 50 percent or more according
 to the temperature of the phonogram cylinder
 when manipulated. The percentage of
 Carnauba wax to be added will depend
 on the shape of the recording point. If very
 fine a large percentage can be added than
 if not so fine, I do not wish to confine
 myself to any particular proportion of
 Carnauba with the other waxes as they may
 be varied & produce proportionate results according

to the character of the phonograph
in which the cylinders are used -

I desire to claim the use broadly
of Carnauba ~~or similar wax~~ ^{or wax of like composition} as
a general hardener of the softer waxes
for phonograph cylinders

Edison

Kyer

Feb 22 '88

Change the Kneeling apparatus thus

after phonogram is ready deposit with
silver in vacuum or graphite electrolytic
process. then plate with lead or tin,
about 16 inch thick dissolve out way
saw the cylinder through. once so it can
be bent flat. It is then bent around
a cylinder and secured to the same
by cement, forming an Kneal,
or it can be bent flat and the
cylinder to be reproduced passed
over it like a lithograph press
stone. = The latter preferable
method =

Edison -

Clavi. Alpha Centauri Ori. or
the pale star — —

Rec'd
Feb 27/88

Feb 27/88

The object of this invention is to improve the methods of separating magnetic from non magnetic particles.

The invention consists of a peculiar delivery happer which permits the powder to fall straight and not be spread out into a wide stream

Hencefore in Magnetic ^{or other} Separators

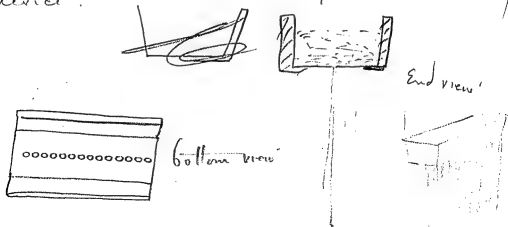
V shaped happers have been used with a narrow slit at the bottom. The particles ~~are~~ are thus given an angular motion the result being a stream of particles which widens greatly as it falls

Thus



~~my~~ This makes it very difficult to separate the magnetic from the non magnetic by alterations of the trajectory especially when the material is very fine as in aeriform pyrites

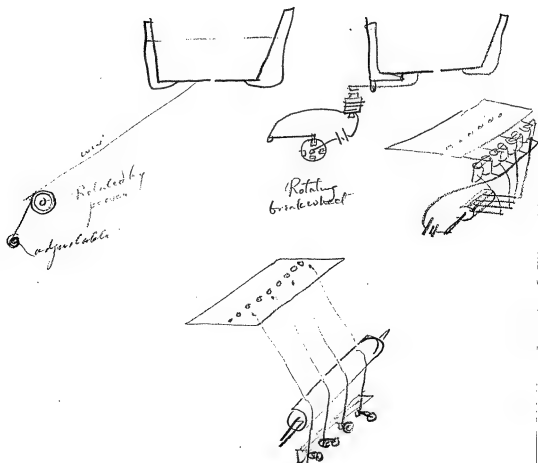
I have found that the stream can be almost prevented from spreading by the following device.



If the hopper be kept filled the particles leaving the thin sheet brass by the holes fall perfectly straight, and continue so for a foot or more but gradually spread out by action of the air - The space between the holes causes the whole stream on its first start to appear as a number of streams but at some distance from the hopper these coalesce & form one sheet, Thus the particles are all widely separated from each other which is very essential for perfect separation when the largest portion of the material is magnetic.

when the ore or material is ³very fine
& a very fine sheet of falling particles
is essential the holes must be very
small say for 100 mesh material the
holes should be $\frac{3}{64}$ of an inch and $\frac{1}{32}$
apart, when this small the powder
will not pass through. To obviate
this the brass plate is made to receive
vibrations like the vibrations of a phonograph
diaphragm ~~of~~ or a plate bowed by
a violin bow. This sets the particles in
vibration & they pass freely through
the holes, this vibration can be
produced by a series of levers
connected to magnets or by
wires connected to different parts
of the hopper plate, these wires
receiving longitudinal vibrations
by passing over a revolving wheel
covered with leather & surfaced
with Rosin -

See Cuts,



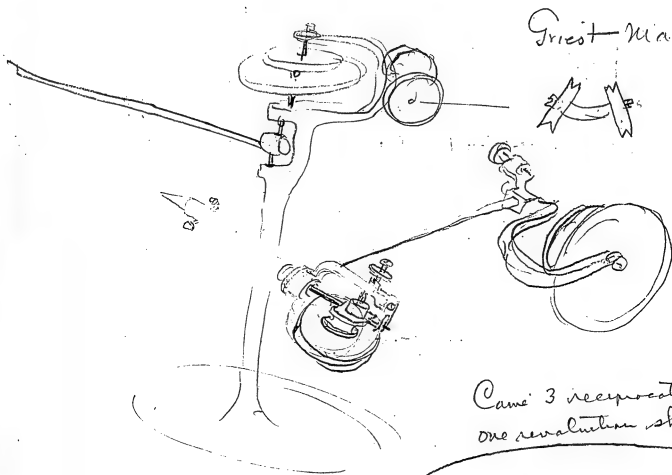
Dick -

4

This is a real big advance
Cover it up as much as possible.

Edison

P.S. a straight slit $\frac{3}{4}$ wide
can be used just as well as
the holes, but the stream is
thicker edgewise and does not
give so perfect a separation
as particles are closer together
& some of the magnetic particles
lock the non together when in
close proximity to each
other - still the slit is good
so don't confuse it to holes



Grist Machine.



Came 3 reciprocations to
one revolution shaft

Copy.

" If
The real object of this letter is to lay before you, a new manufacture
of porcelain lately discovered, and now in work here, I enclose
you a short Circular describing its merits, and virtues,
I have also instructed the Agent here to forward at once
to your address, a small case of samples of insulators for
Telegraph wires made of this porcelain, as it is in this branch
that we hope and expect particularly to do a very large business
having received some very encouraging trial orders. It is thought
that for this special purpose it will be highly successful,
owing to its being perfectly non-absorbent, and therefore
absolutely impervious to damp. I may add that every
description of article now made in earthenware and porcelain
can be made by this new process for exactly the same cost
as common earthenware goods are now made.

I shall shortly send you a parcel of Sample tiles
for flooring and making walls, &c. &c. which I think will
meet with the highest approval of yourself, and any one
you may show them to, more especially if they are
in the porcelain and earthenware trade. I don't want that
the insulators sent you, are the wrong pattern for your
market, as they are made to the pattern used by our
Govt. but this is of no consequence as they can be
made just equal case to any pattern, size, so if
you will get a pattern of those used on your side
we can supply you with any quantity you may set
orders for. In order to prove how every non-absorbent
this manufacture is, I would ask you, to brook one of
the samples and on the patterned piece, put a large quantity
of ink let it remain as many hours or days as you please
and then with a damp cloth, wipe the ink away, and you will

have no trace remaining, with the ordinary sathenware
this is not the case, as, if the same test is applied you will
find that the material being spongy the ink will be
absorbed as in blotting paper and impossible to remove,
' I will write you fully as to the terms we can offer
and prices we can quote, in the mean time if questions
are asked you as to price you can say, that the price
corresponds with the price we paid for the ordinary
sathenware manufactures of this Country"

THE EDISON ELECTRIC LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis R. Upton,
Edward H. Johnson,

Menlo Park, N. J., _____ 188

~~This invention consists~~

The object of this invention is to increase the economy of lighting by ~~incandescent~~ electrical incandescence,

The invention consists of the employment of chlorine to remove the hydrogen which is ever present in lamps consisting of carbon filaments, to ~~prevent~~ diminish electrical carrying which lessens the life of the filaments, and also to diminish the loss of heat due to the action of hydrogen ~~on~~ by causing the same to enter into combination ~~to form~~ with the chlorine to form hydrochloric acid gas which enters into combination with

~~copper in the form of chloride~~ the residual gas being chlorine ^{hydrochloric gas} does not carry heat from the carbon filament ^{any solvent} and the electrical carrying ^{thus carrying less energy} is not to give a certain ^{life}

is also greatly diminished hence
the life of the Carbon filament is
greatly prolonged

Observe

~~After~~ ~~again~~ after the lamp bulb
containing the Carbon filament is exhausted
so that there is a high vacuum - dry
Chlorine gas is ~~then~~ admitted ^{until the Vacuum is}
when the Vacuum is ^{again raised & then} brought to moderate high
the filament is brought to incandescence
& continued until nearly all of
the Chlorine is removed & high Vacuum
is attained. The lamp is sealed off &
is ready for use. ~~During the process~~
~~which may come out of the filament~~
~~when the lamp is in the pump or~~
~~which may appear as a piece of Copper~~
~~foil will in the chamber will~~
~~cause the~~ another convenient method
is to have an auxiliary tube leading
from the bulb containing a chloride
such as the Chloride of Antimony, Carbon

THE EDISON ELECTRIC LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis R. Upton,
Edward H. Johnson.

Menlo Park, N. J., 188

and other suitable ~~solid~~ Chlorides
which can be volatilized by heat.
When the g. Carb. & like Compounds
have exhausted ~~the supply~~
& the air as far as possible has passed
from the Carbon by heating it
with the current (the auxiliary
tube is heated by a lamp either)
to decompose the Chloride ~~or~~
& cause it to give out free Chlorine
or drive the volatilized Chloride
into the globe where coming in
contact with the incandescent
Carbon frees it of Hydrogen
& leaves a metal & the two gases
mentioned if a metallic Chloride
is used or deposits Carbon on the
on the filament if a chloride of
Carbon be used ~~or if the chloride~~
~~of a metal other than~~ Bromine or other heavy
gas may be used that will
combine with the Hydrogen

Claim

In an Electric lamp giving light by incandescence the use of Chlorine to remove the Hydrogen.

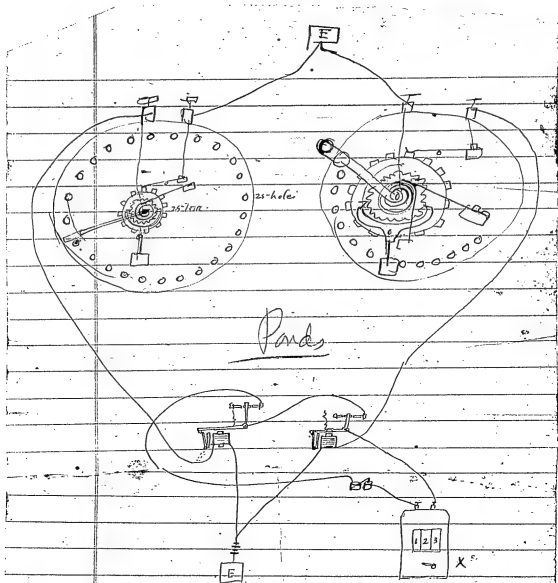
In an Electric lamp giving light by incandescence the use of Chlorine to form the residual gas.

In an Electric lamp giving light by incandescence the use of a Chloride of an element within such lamp ^{while} in the act of being made or afterwards.

The use of Bromine Chlorine or any heavy heavy gas that will combine with Hydrogen.

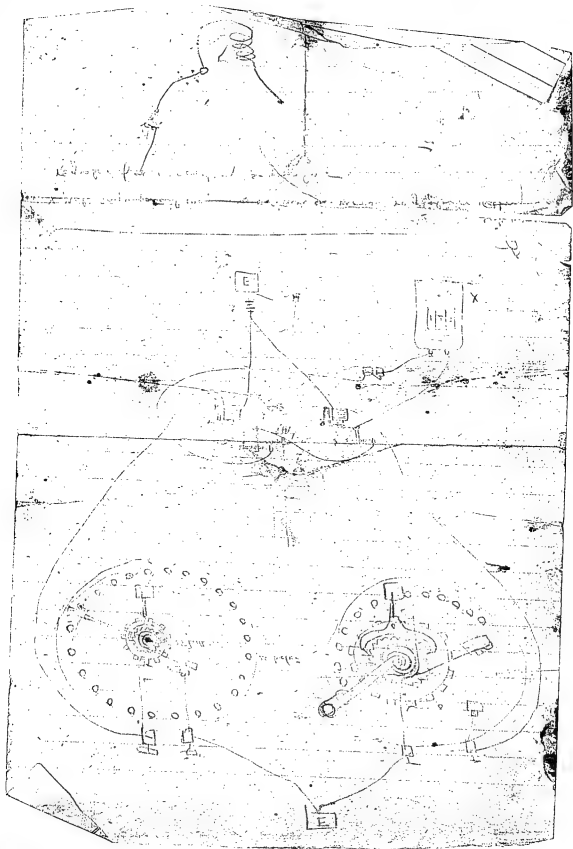
The use of an alcohol within the lamp which will combine with Chlorine so as to ^{increase} the degree of incandescence.

The use of Chloride of Carbon



Panda

X Note say ^{or} ~~in~~ ⁱⁿ ~~can~~ ^{can} ~~be~~ ^{be} ~~substituted~~ ^{substituted} ~~in~~ ⁱⁿ ~~more~~ ^{more} ~~reg~~ ^{reg} ~~or~~ ^{or} ~~with~~ ^{with} ~~the~~ ^{the} ~~reg~~ ^{reg} ~~for~~ ^{for} ~~rec~~ ^{rec} ~~or~~ ^{or} ~~sign~~ ^{sign} ~~ali~~ ^{ali} ~~—~~ [—]

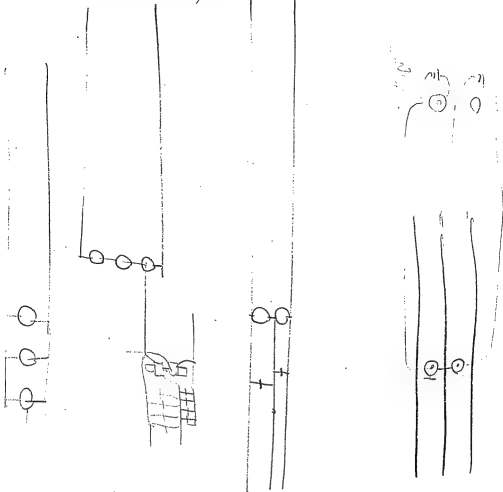


Encl. Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Maria W. Edison
Nov. 3 / 88

Orange, N.J. _____ 188



25000,

1500

3

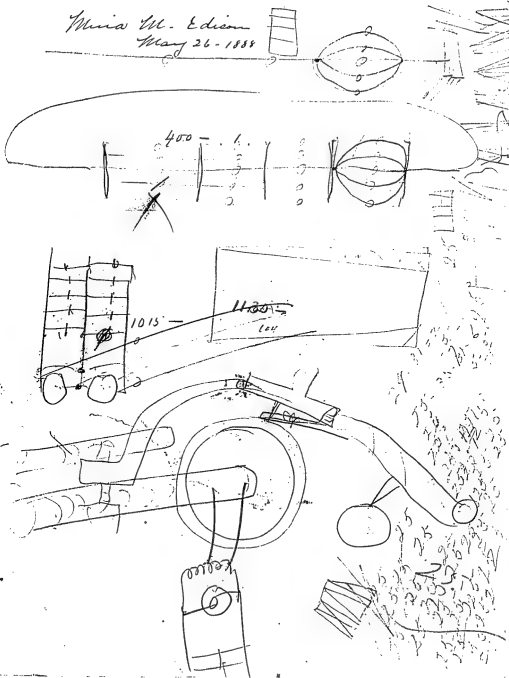
2500

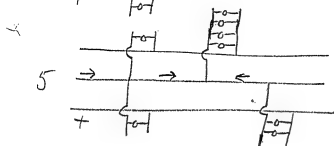
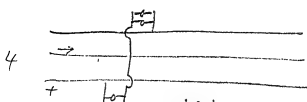
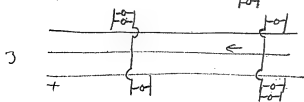
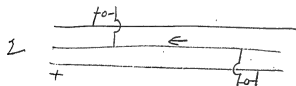
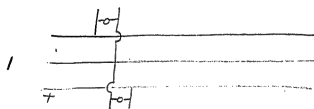
15000

$$\begin{array}{r} 25000 \\ 15000 \\ \hline 10000 \end{array}$$

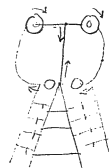
$$\begin{array}{r} 25000 \\ 15000 \\ \hline 10000 \end{array}$$

Thina M. Edison
May 26 - 1888

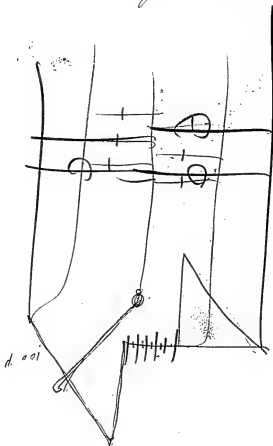





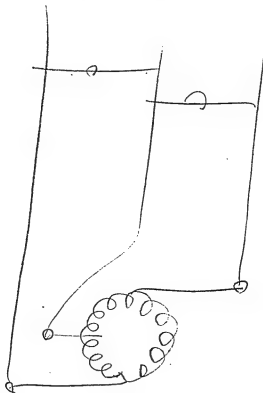
Miss M. Edison
May 26 - 1888



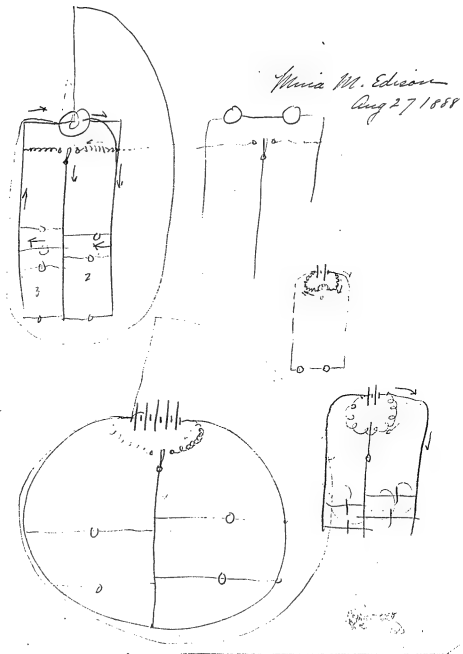
Maria W. Edison
May 26. 1888



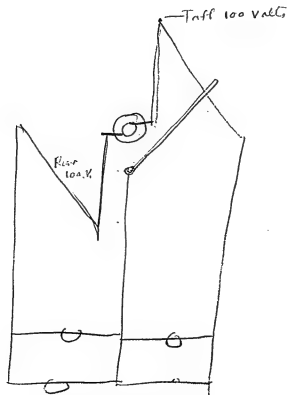
 *Maria W. Edison*
May 26 - 1888

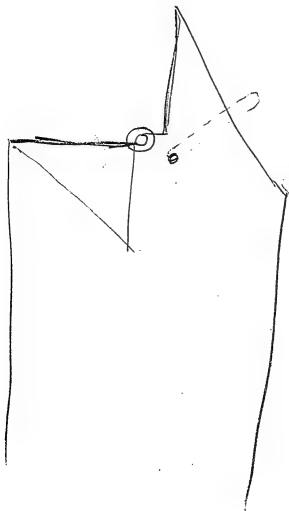


Wm. M. Edison
Aug 27 1888

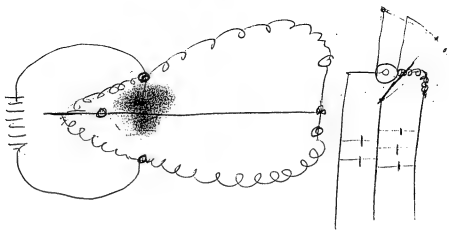
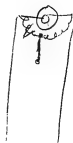
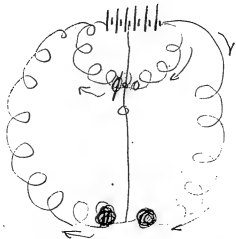


Ninia W. Edison
Aug 27 - 1888

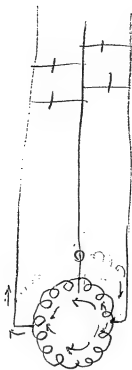


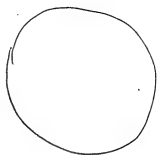


Maria M. Edison
Aug 27 1888



Minna M. Edison
Aug 27, 1888





Call Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison

Subject: _____

Orange, N.J.

2 wire # 32
3 " 12
5 " # 5

} same distance
} same % loss

wires	size	no of wires	wt	
2	1	2	2	1000
3	1/4		3/4	37 1/2
5	1/16		5/16	15 ±
6	1/25		6/25	12 1000

0	0	0	0	0
5				

"Cable Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Orange, N.J.

Subject,

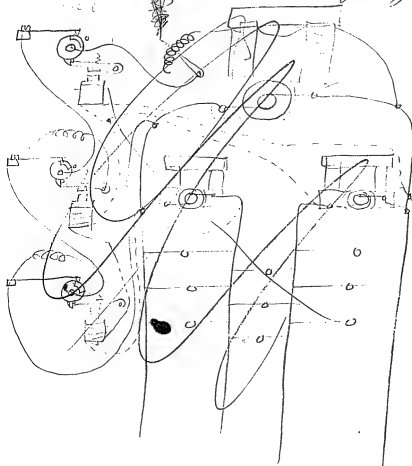
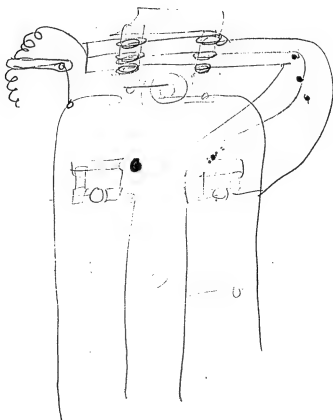


Fig 4

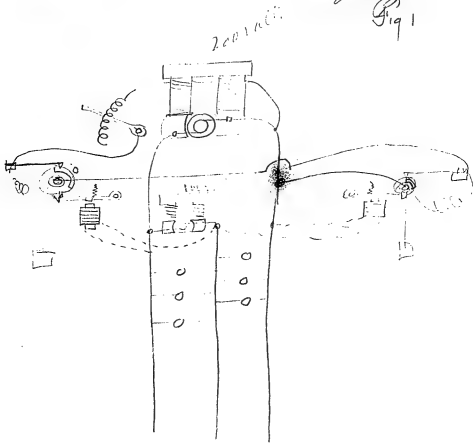


Called Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Subject, _____

Change, N.Y.
Fig 1



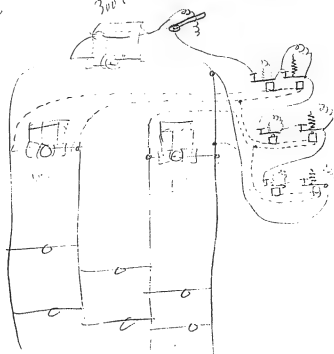
Call Address "Edison, New York!"

From the Laboratory
of
Thomas A. Edison.

Subject, _____

Orange, N.J.

fig 2



Call Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Subject, _____

Change, N.Y. _____

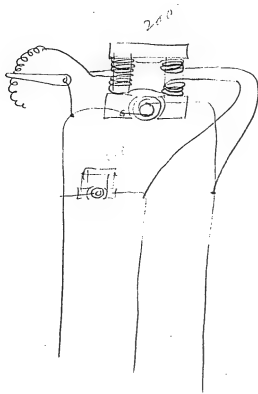
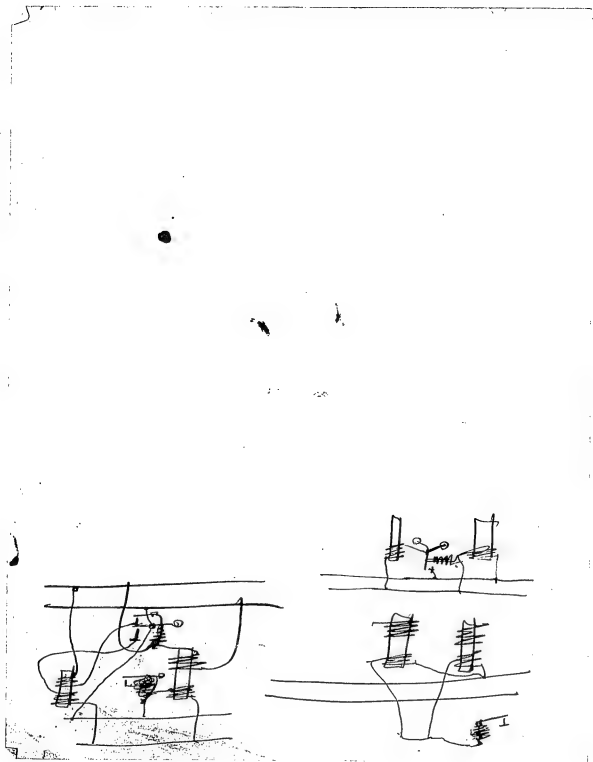


Fig 3

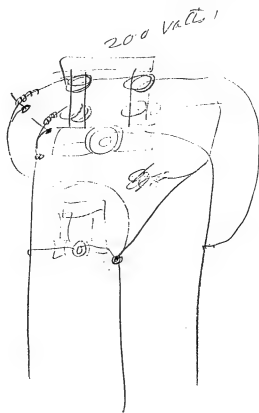


Called Edison "Edison, New York!"

From the Laboratory
of
Thomas A. Edison.

Subject, _____

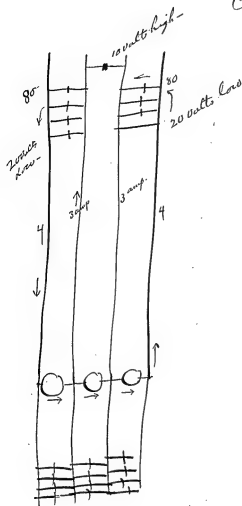
Orange, N.J. _____



Encl. Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

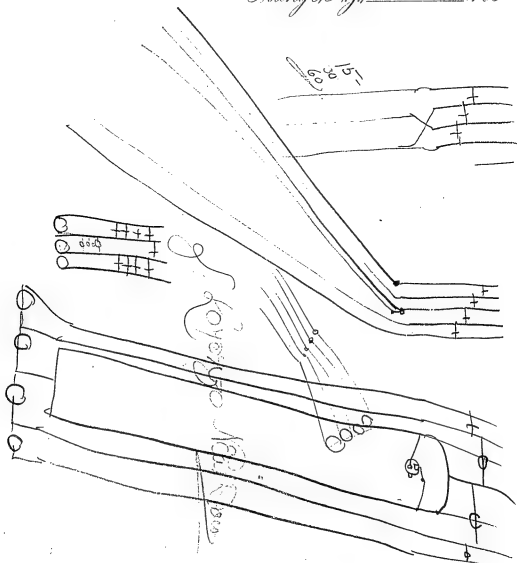
Orange, N.J. — 188

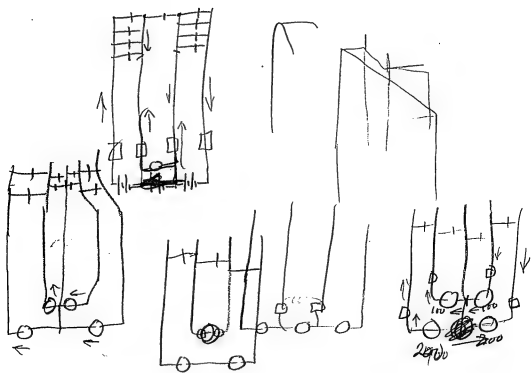


Call Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Orange, N.J. _____ 188

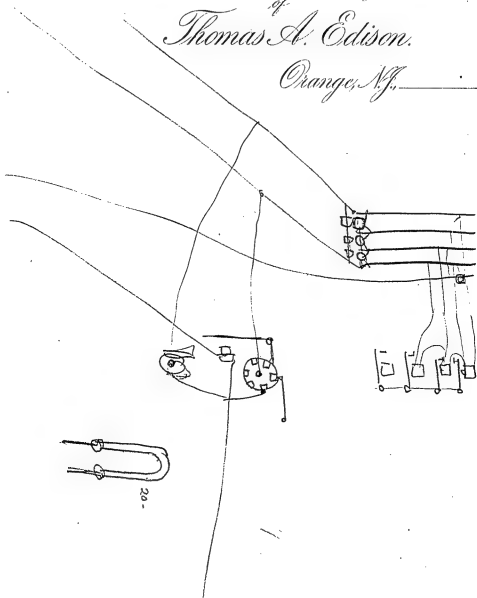


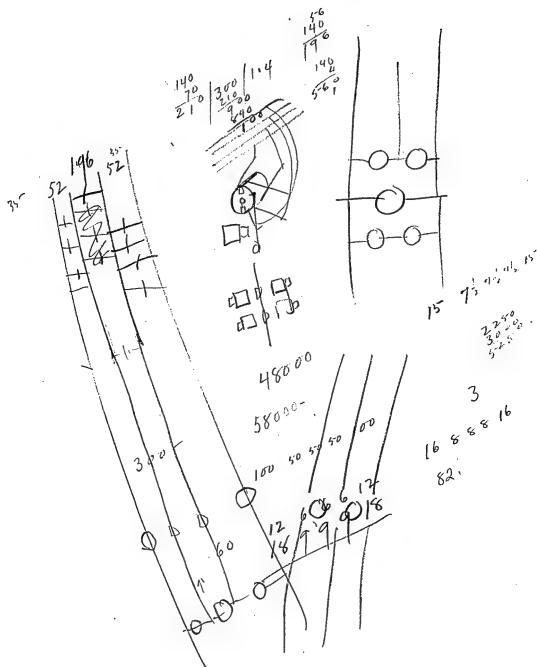


Cable Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Orange, N.J., _____ 188



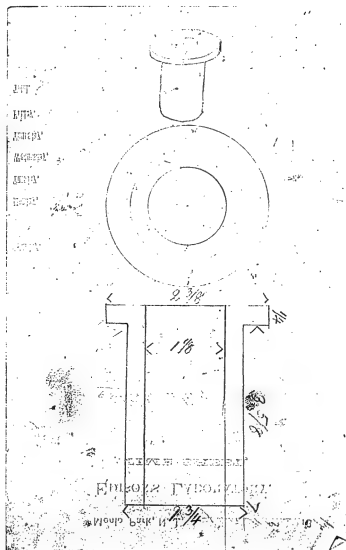


UNBOUND NOTES AND DRAWINGS, 1879-1886

The Unbound Notes and Drawings are miscellaneous loose pieces of paper containing technical notes and drawings made between 1879 and 1886. Most of documents are by Edison. There is also material by Charles Batchelor, John F. Ott, and other laboratory assistants. The documents relate primarily to electric lighting. Other topics include telephony, telegraphy, and electric railways. The notes and drawings appear on the microfilm in chronological order.

UNBOUND NOTES AND DRAWINGS

1879

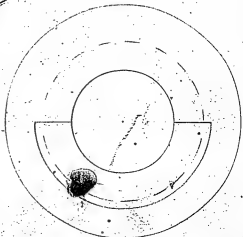
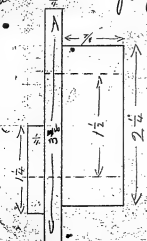


Edison's
Magnetic Machine

JGH

Pattern for
press

Jan 6 1878
at Patent



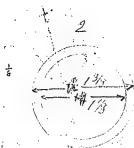
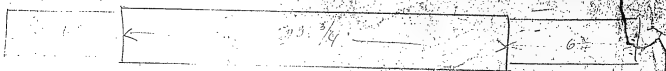
Edison Magneto Electric Machine

Jan 6 1849

Chapman

Mr Jackson

1 Shaft $1\frac{1}{2}$ " diam. in middle
and one end $1\frac{1}{4}$ " $6\frac{3}{4}$ " long
and the other $1\frac{1}{4}$ " 6" long



Also

2 washers to run loose on
small ends

Leave the middle a shade large
so that it can be fitted to the
hole after Logan has bored it

Resistance & Cell		Co's cell	Art	Drum	Platinum Alloy 20pc	Drum	Spoon No 1		No 1
Size of Wire	Length of Wire	No of Cells	Deflect	Color	When Resistance	Deflection x Resistance	Ratio to C ² X R when cold	Ratio to C ² X R when dull red	Remarks.
004	150	1	4°	nil	6.39	39.			Fresh - Bradley gal. strip shaded with thick wire of Bradley Resistance Coil Jan 14 1879
"	"	2	6°	nil	7.8	86.	2.19		
"	"	3	8°	nil	8.8	159.	4.06		
"	"	4	10°	Just beginning to show	8.8	273.	6.97		
"	"	5	11°	Red	9.8	369.	9.42	1.35	
"	"	6	12.30	Bright red	10.2	499.	12.7	1.85 1.35	
		7	13 1/2	Yellow Red Orange	11.4	639.	16.2	2.24 1.73	Looks distance of 2 feet 1/2 thick
		8	14 1/2	Yellow + white cast light	11.4	740.	18.9	2.71 2.0	" " " " 1/6 thick
		9	15°	Quite white	12.2	875.	22.3	3.21 2.35	Appears a shade over to thick
		10	16°	Very light white light	13.6	1030.	26.5	3.79 2.5	" " " " " "
		11	17 1/2	White light with yellow	12.96	1280.	32.7	4.65 3.11	Seem cross with fine line at edges like no shading on map.
		12	18 1/2	Full white	13.26	1470	37.8	5.4 3.78	
		13	19 1/2	Brilliant white	13.56	1700	43.4	6.22 4.41	
		14	19 1/2	Extreme white	13.56	1720	44.	6.31 4.67	Sufficiently brilliant for our purpose.

[illegible]

Indium Platinum Alloy No 2				Spool No 2		Bridley Galv.		No 2 twisted with thick wire No 2		Remarks.
Condit	Temp	Range	Chamber	Resistance	6' ohm	Ratio to C ² X R	Ratio to C ² X R	Ratio to C ² X R		
Wires	Wires	Wires	Wires	Wires	Wires	Wires	Wires	Wires	Wires	Wires
004	150	1	4	6.8	30.					
"	"	2	6	6.4	93.	3.1				
"	"	3	9	4.3	204	8.6				
"	"	4	11	4.9	277	9.9				
"	"	5	13	8.5	452	15.1	1.33			
"	"	6	14	8.93	541	18.1	1.32	1.47		
"	"	7	15	9.2	660	22.2	2.23	1.64		
"	"	8	16	9.6	788	26.3	2.64	1.74		
"	"	9	17	10	991	33.1	3.31	2.21		
"	"	10	17	10.3	1020	34.1	3.43	2.24		
"	"	11	19	10.5	1240	41.4	4.17	2.74	about same as candle	
"	"	12	19	10.4	1340	44.5	4.47	2.77	can just see the fingers	
"	"	13	30	11	1530	51.2	5.14	3.27	fingers very prominent	
"	"	14	31	11.5	1690	56.5	5.67	3.75		
Length of wire reduces to 140 mm. at Globulated					Permanent elongation of wire			1 mm		

Platinum wire.

Spool No 3

When cold on Calandale 3.6 ohms

Battery Carbon C.H. large
Galv. Bradley No 14 shunted with large wire.

Jan 14 1879

Chas. Batchelor

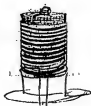
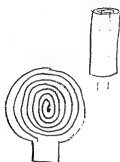
Age	Length mm	Cal.	Dia.	Color.	Resistance Ohms	Deflec ² X R	Rate to C ² X R	Rate to C ² X R	Remarks
004	150	1	5.0		29	30.6			
"	"	2	8.2		4.9	120.	3.56		
"	"	3	11		5.4	215	7.03		
"	"	4	13	Dull Red	6.3	346	11.3		Better than first color on No 1 & 2
"	"	5	14	Red	7.2	447	14.6	1.29	Shuts
"	"	6	15.2	Yellowish Orange	7.9	607	19.8	1.65 1.35	Special Remark— Platinum wire 004 300 mm on found in Spence's Cellium 2 cells being it—dull red
"	"	7	16.2	Yellow	8.3	638	20.8	1.84 1.42	Resist. Cold 6.4 ohms
"	"	8	17.2	Bright bright yellow	8.4	869	28.3	2.51 1.94	
"	"	9	18.2	White yellow	9	1150	33.1	2.72 2.26	
"	"	10	19.2	Yellowish white	9.2	1150	37.7	3.33 2.58	
"	"	11	20.2	White	9.5	1328	43.4	3.83 2.77	
"	"	12	21	Bright White	9.9	1452	47.6	4.22 3.26	This
		13	21.2	Bright White	10.5	1663	54.4	4.81 3.72	
		14		Very Brilliant white					Melted before we could test

With 14 cells on 170 mm. Turns: on 180 mm. Deflec 21 Resist 12 ohms

Notice any permanent elongation

January 28 1879

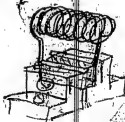
H.A. Carter



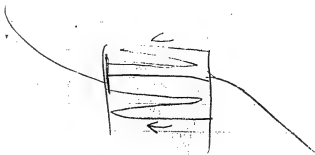
1 1/2

12

5 18
5 20
5 20

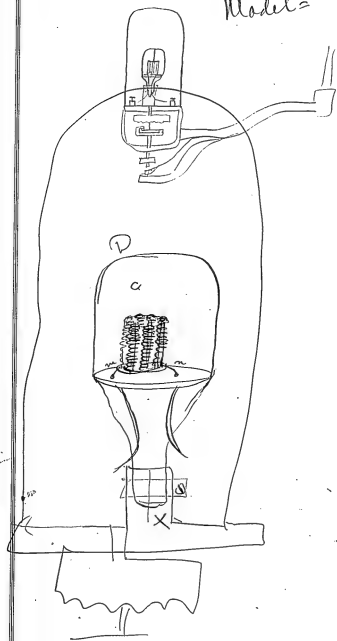


Jan 28 1879



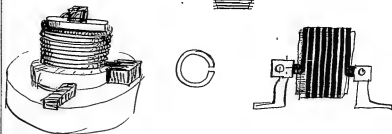
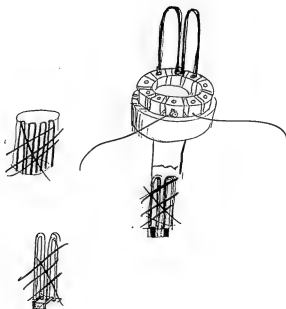
John A. H.

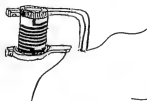
Model =

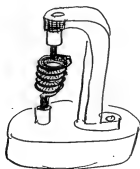
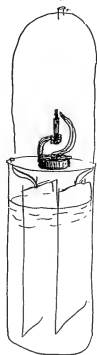


vacuum =

LW







Claim

The object of this invention is to economically produce & subdivide the electric light =

The invention consists in the use of an ~~oxidizable~~ incandescent conductor of ^{very pure} iron, nickel or cobalt in a vacuum

The invention further consists in the use of an incandescent conductor of platinum - Iridium Rhodium Osmium Palladium or alloys of either in a vacuum within a second vacuum or ~~closed~~ seal globe at the atmospheric pressure, the heat of the first vacuum tube due to the heating of the conductor communicating with the air of the second globe to expand it for the purpose of giving motion to a current regulator as already shown in my patent of applied for _____

1879 =

The invention further consists in the method of manipulating the incandescent conductor before final sealing within the first vacuum tube =

10 V.
I have discovered by ~~observing the normal~~
behaviour of ~~platinum~~ at high temper-
that ^{chemically} pure iron when drawn in wire
and formed into a spiral, & then
placed in a vacuum may be brought
to ~~a certain~~ incandescence. I have
also discovered that many metals
which have gas within their pores
have a lower melting point than
when free from such gas - for instance
iron was heated ^{several volumes of} hydrogen & carbon
monoxide gas within its pores.
If such wire be placed in a vacuum
and the full current be put upon
it it rises to a ~~brilliant~~ incandescence.
If the current is increased it reaches
a brilliant incandescence & then melts
but if after the vacuum has been
made the wire is brought to a
faint dull red for several minutes
gas is ~~absorbed~~ ^{absorbed}, then vacuum is
then made again perfect & the
metal ~~made bright~~ brought to
a yellow heat by the current &
allowed to remain so for several
minutes & the vacuum again
made perfect. then by adding
more & more battery manipulating
the vacuum at each

increase of temperature the wire may be brought to the most glowing incandescence which is perhaps 1000 degrees higher than its fusing point with the gases within its pores. This wire may be brought to a much higher incandescence than platinum or platinum-Iridium alloy in the open air.

The same effect takes place with platinum rather metal - With platinum in the open air if the current is placed on suddenly the gas within its pores expands explosively & disrupts the platinum so that it shows myriad of cracks where the sudden expansion of the gas has caused the metal to expand beyond a point where it naturally would were there no gas.

But in a vacuum where reabsorption of the gases are prevented & by pulling ^{away from the vacuum} on the current gradually ^{as before} mentioned a Platinum-Iridium spiral having but $\frac{1}{4}$ of an inch radiating surface may be made to give a light equal to 21 candles steadily for hours whereas in the open air it requires nearly 1 inch of radiating surface to produce the same effect because the ~~plasma~~ melting point

of the platinum alloy & gas within it is enormously lower than as described in
 Once the gas has been ~~not~~ excluded from
 the metal the current may be put on or
 off suddenly = of course porous ~~substance~~
 conductors such as carbon would be
 enormously benefited by this process
 as the ~~past~~ sudden expansion of the
 gases when the current is put on suddenly
 disrupts the conductors and devices have
 to be employed to put it on gradually
 to prevent the distortion of the conductor
 which is unnecessary by my process =
 I prefer to use iron for the reason that
 its resistance increases at a greater ratio
 with heat than platinum hence I can
 obtain a greater resistance with a smaller
 radiating surface than by the use of
 platinum or platinum iridium =

C is the burner ~~to~~ D the ~~first~~ vacuum
 glass sealed with two platinum
 conducting wires N.T.M. welded in the
 tube & passing to the conductor, this
 tube is secured to the yallow X.
 The heat from the tube expands the air
 & this causes the anemoid drooping to
 work the current manipulating device
 substantially as shown in my apparatus

filed

Claim -

The Combination with a thermic regulator
sub as described of a sealed vacuum
tube containing an incandescent
Candescer.

2nd The use of iron ^{nickel or cobalt} ~~nickel~~ as a material for
giving light by incandescence when placed
in a sealed vacuum ~~and having its gas~~
freed from gas substantially as described,

3rd The use of ~~the material of the~~ ^{platinum} group as a material
for of any conducting material for lighting by
incandescence when the same is enclosed in a
sealed vacuum and freed from gas as
set forth.

J A E

Feb 9 1879.

March 18th 1887



For the purpose of the
the following

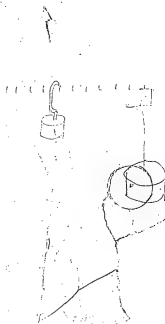
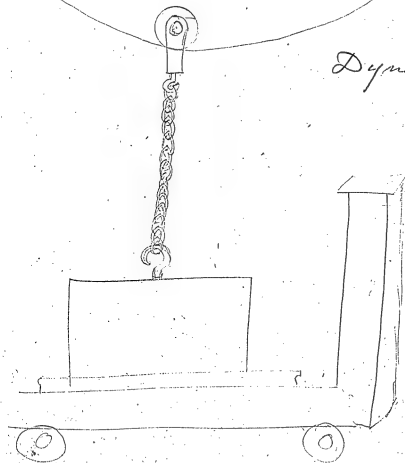


08, 22 8, 24



Jan 25
1899
J.S.

Dynamometer





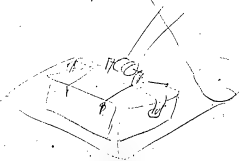
E. 192

June 1919
Dyname

H²
S¹⁴

~~1919~~
~~1918~~

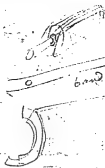
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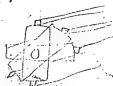
UNBOUND NOTES AND DRAWINGS

1880

St. 22 12. 11. 11. 150 11. 11. 11.



band a very long thin sheet



January 10 1880
J. C. Brown



New York, Aug 14, 1879

Mr J. K. Edison
Mabel Park N.Y.

Dear Sir - Answering your
Enquiry for price, Sick Cord Patent Steel Wire

Would say that we can furnish the same in
White Sicks - as follows - the size sent - on the
nearest to the following numbers - and our prices are
based on them viz:

15.	29.	36.
price - 1.25	3.25	7.50 per lb.
1.25	2.57	5.34
Discount 25 + 5%		

Of No 15 (about) - we can furnish 25 lb in a week
And - the same and produce thereafter

" " 29. " we can furnish 10 lb in a week, and
10 lb for week thereafter.

" " 36 - we could not furnish any within 2 weeks
We of course guarantee quality of the wire,
and the very best workmanship.

Very Respy Ansonia Brass & Copper Co
Thos. Macdonald.

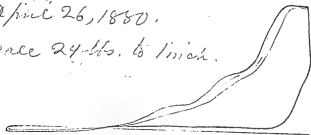
Lime Kiln, Newark.

Potter's Engine,

32 x 18,

April 26, 1880.

Scale 24 lbs. to 1 inch.



Lime Kiln, Newark.

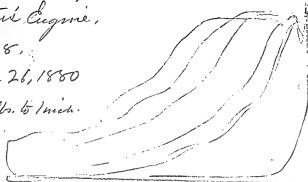
Governor lifted by engine and
allowed to fall, showing variable ex-
pansion.

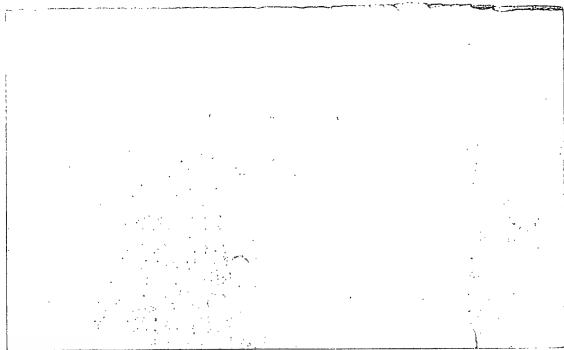
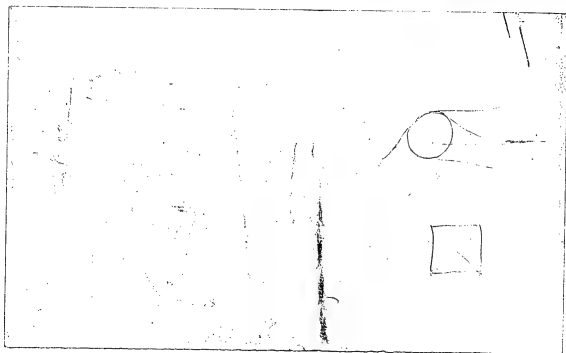
Potter's Engine,

32 x 18,

April 26, 1880

Scale 24 lbs. to 1 inch.





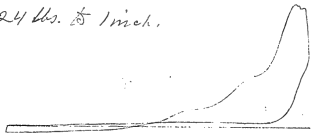
Lime Kiln, Newark R.

Porter's Engine.

32 X 18.

April 26, 1880.

Scale 24 lbs. to 1 inch.



Lime Kiln, Newark R.

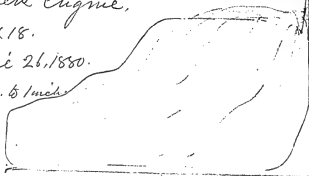
Governor lifted by engineers
and allowed to fall showing
the variable cut-off.

Porter's Engine.

32 X 18.

April 26, 1880.

Scale 24 lbs. to 1 inch.



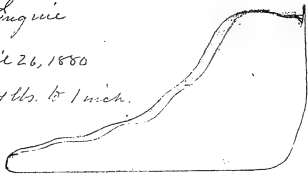
Lunie Klein, New York.

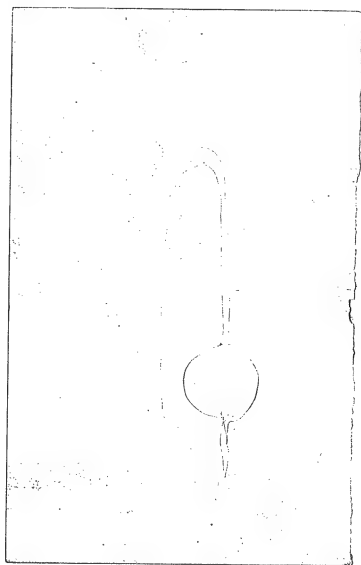
Portia's Engine

32 x 18

April 26, 1880

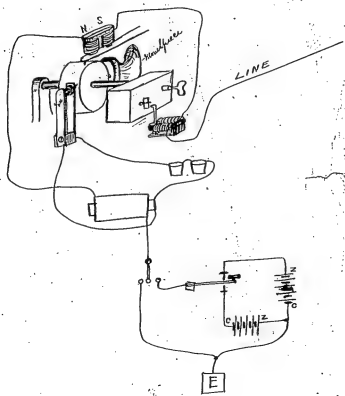
Soace 24 lbs. to 1 inch.





Chas Batchelor

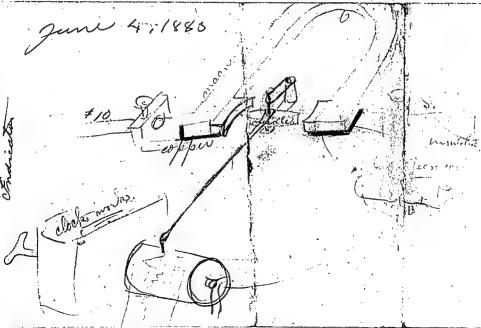
May 18th 1880



Phonograph as transmitter

June 4th 1880

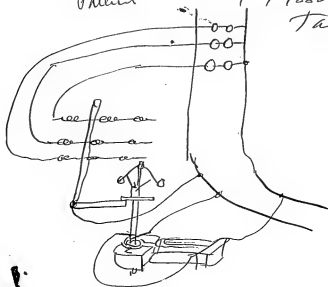
P. "Emf"
1880
Electromotive force
Character



T. A. EDISON,

Menlo Park, N. J., _____ 1880

Patent Aug 24 1880 Tag

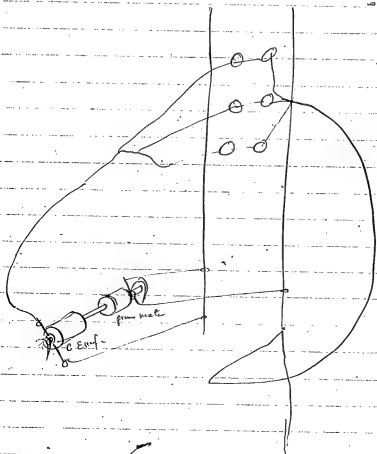


Patent



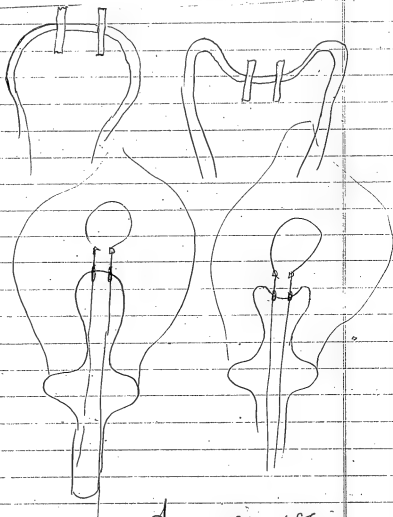
to ascertain if magnet is
strong or weak -
B a thermometer for reading
at any time temperature
over from Gobbin to ascertain
its heat &

Aug 27 1880
TAE



Auto Regulation
by Count Equip.

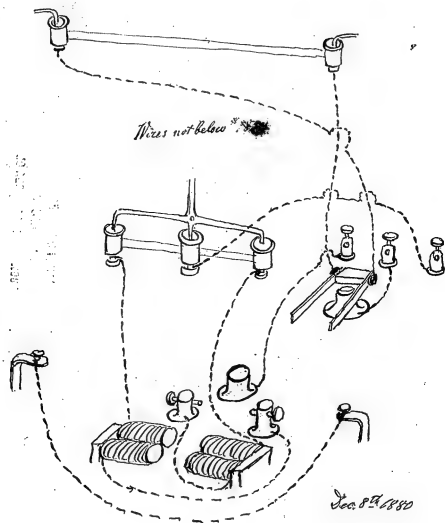
Aug 27 1880 r.s.



patent

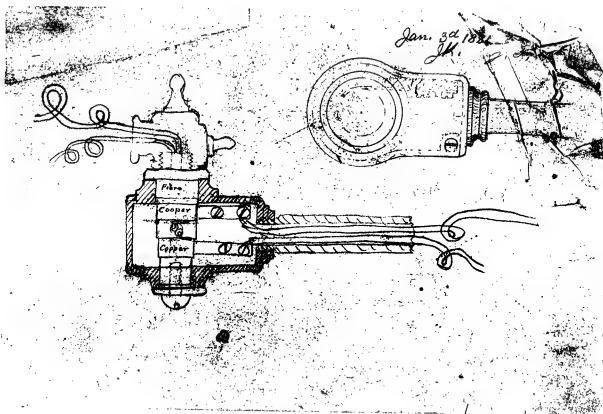
Aug 27 1880

T. A. F.



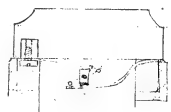
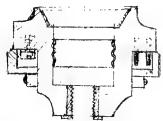
UNBOUND NOTES AND DRAWINGS

1881



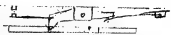
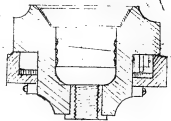
Jan. 26, 1831

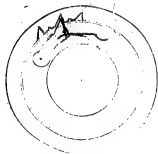
1831



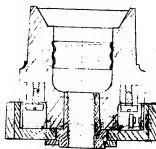
Jan. 26, 1831

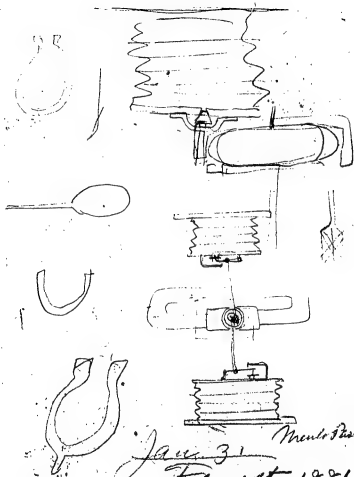
1831



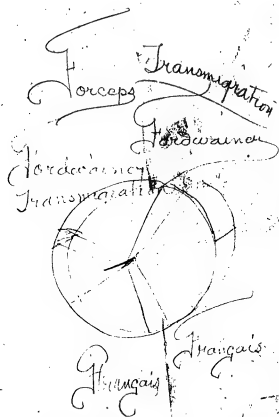


Jan 26, 1891
J. S. O'Leary





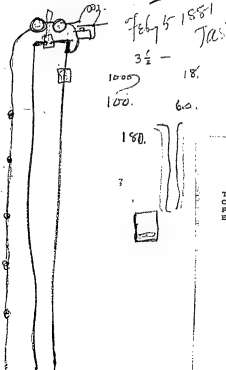
Jan 31 *Mento Stork*
Feb 1st 1881
JH



THE EDISON ELECTRIC LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis R. Upton,
Edward H. Johnson.

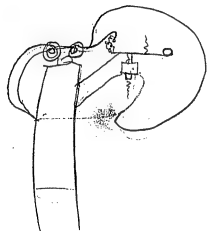
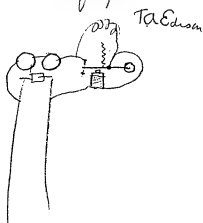
Menlo Park, N. J., 188



THE EDISON ELECTRIC LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis R. Upton,
Edward H. Johnson.

Menlo Park, N. J., Feb 5 - 1881, 188

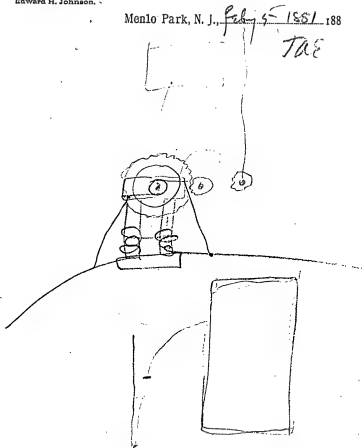


THE EDISON ELECTRIC LAMP CO.,

Thos. A. Edison,
Chas. Batchelor,
Francis H. Upton,
Edward H. Johnson.

Menlo Park, N. J., Feb 5 1881

TAE



THE EDISON ELECTRIC LAMP CO.

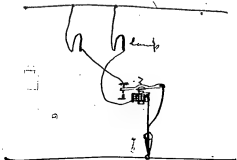
Patented in England
Patented in France
Patented in Germany
Patented in Italy
Patented in Spain
Patented in Belgium
Patented in Austria
Patented in Hungary
Patented in Russia
Patented in the United States

Model 1875-76

1875



All right

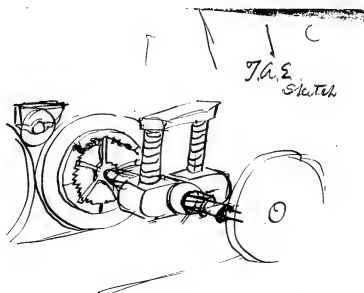


April 2nd 1881

J.P. Work

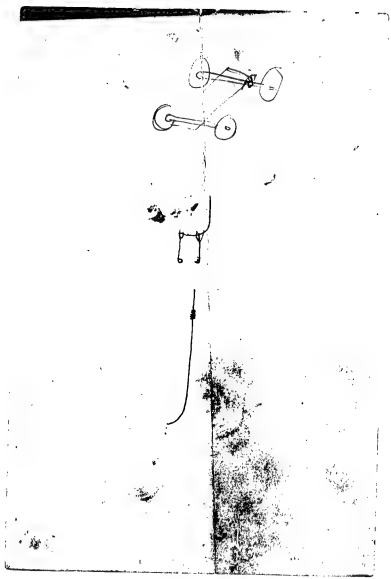
Matt' having got this
sets for automatically throwing in
other lamps when one breaks

J.A.R.



Handwritten text: "T.A.E. State"



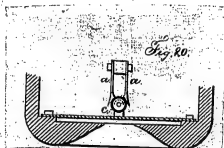
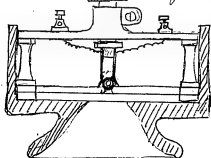


Menlo Park, N. J.,

1881.

Telephone
transmitterJune 8th 1881

Make 1 of this

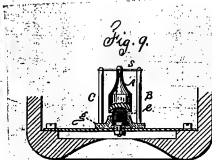
C carbon hollow
to make less
weightDiaphragm ordinary
phototype plate 008a a german
silver springs
platinum pointerBoth binders
insulatedChas. Batchelor
for L.A.E.

T. A. EDISON,

Telephone transmitter

Menlo Park, N. J.,

1881.

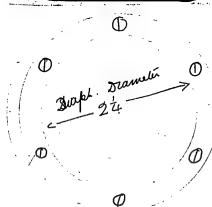


S. light spring

A High brass
cupped out

9 Hard rubber cup

a Carbon

Diaphragm of
ordinary phototype
plateChas. Batchelor
for L.A.E.

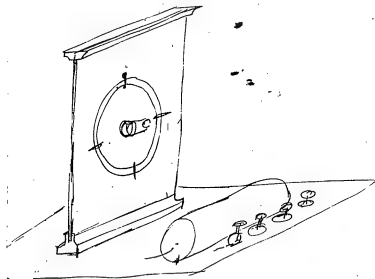
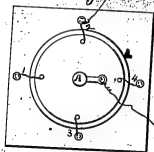
T. A. EDISON,

Telephone transmitter

Menlo Park, N. J.,

1881.

Fig. 19

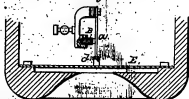


T. A. EDISON,

Menlo Park, N. J.,

1881.

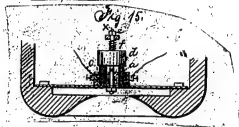
Fig. 18



T. A. EDISON,

Menlo Park, N. J., _____ 1881.

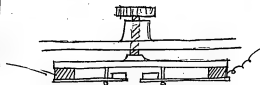
Telephone



T. A. EDISON,

Menlo Park, N. J., _____ 1881.

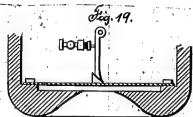
Telephone



9

T. A. EDISON,

Menlo Park, N. J., 1881.

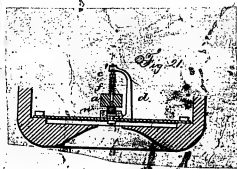


T. A. EDISON,

Telephone transmitter

Menlo Park, N. J.,

1881.



a very light
upright
a brass weight
+ spring light
to clear to adjust
spring

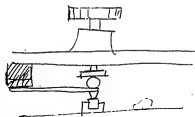
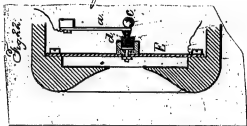
Scraping primary prototype
from the clear

Chas. Batchelor
for T. A. E.

T. A. EDISON,

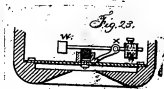
Menlo Park, N. J., _____ 1881.

Telephone



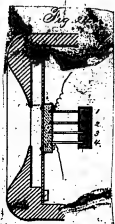
T. A. EDISON,

Menlo Park, N. J., _____ 1881.



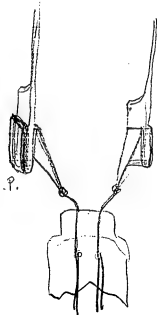
T. A. EDISON.

Menlo Park, N. J., 1881.



Patent
S. D. Doff

Nov 28, 31



Patent

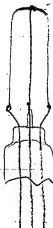
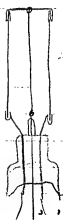
11

~~Order of the ... to ...
be herein to ...
to prevent ...
by the ...~~

Nov 28, 31

Patent

Patent

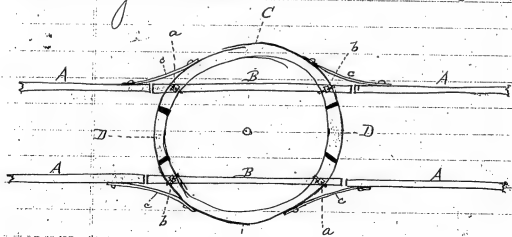


S. D. Doff

UNBOUND NOTES AND DRAWINGS

1882

Electrical Connections for Turn- Table of Electric Railroad

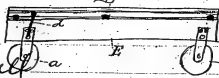


Connections made at New York March 13th 1882 in
Turn Table. Sketch made March 19th 1882.

Witness

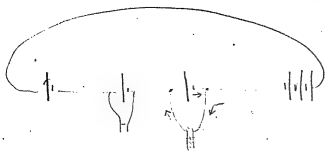
Samuel Insull

19th Mar 82.

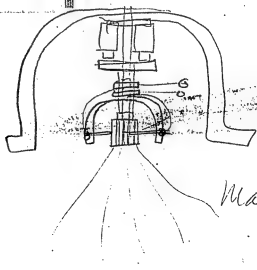
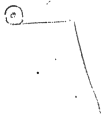
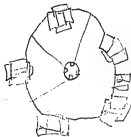


Chas. T. Hughes

A Represents main track; B Represents Tracks
of Turn Table, supported on Timbers E of
Turn Table; a Represents casters connected
electrically with rails B by wires d;
b represents insulated casters; C rep-
resents sections of stationary cir-
cular track upon which casters a &
b roll; c represents connections between
tracks A and sections C; D insulated
sections of sufficient width to prevent
short circuit when Turn Table is moved.



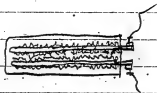
May 10, 1882
729



May 10, 1882
729

—

1



Bound to the
U. S. National Archives

Dear
Friend,
I have your letter of
the 10th received.
I am sorry I cannot
reply more quickly.
I will write again soon.

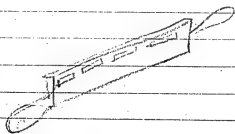
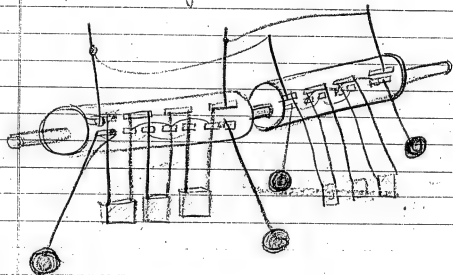
1. The
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 7. The
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 100. The

18 Oct 1946
No. 10, 11, 12
The first 2

(7.3.31)

5-22-11-12

June 11 1882
Am.



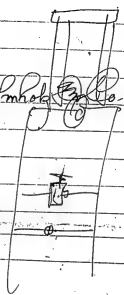
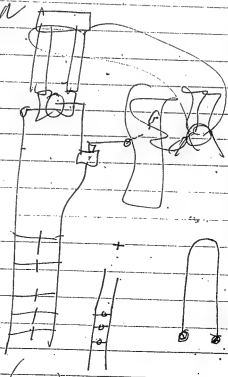
~~Wetzel~~
~~Social Security~~
 22nd June 1882

1. 2.

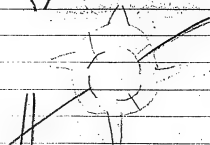
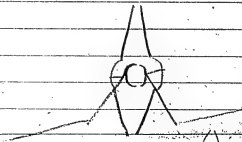
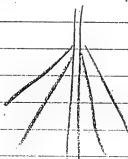
Anders

Anderson

Frederick Hambro & Co.

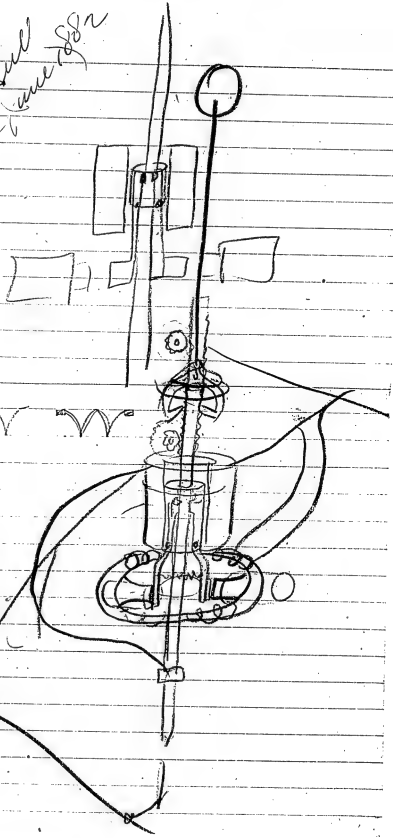


Cuttings
Saul Seibel
27 June 1882

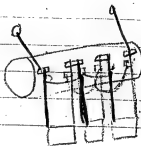
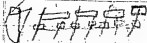
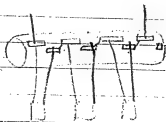
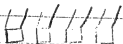


Wetters
Sand Level
22nd June 1982

Wetters
Wetters
Wetters
Wetters
Wetters
Wetters



Witness
Saul Smith
22 June 1882



Eng 4200
4500
500
300
250
200
1300

q net.

$$9 \overline{) 2500} \\ \underline{277}$$

$$\begin{array}{r} 277 \\ 7 \\ \hline 2493 \\ 15 \\ 302 \\ \hline 25400 \end{array}$$

270.

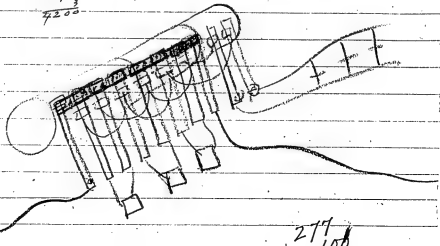
150.

277

$$\begin{array}{r} 1400 \\ 3 \\ \hline 4200 \end{array}$$

$$\begin{array}{r} 300 \\ 1350 \\ \hline 2750 \\ 10. \end{array}$$

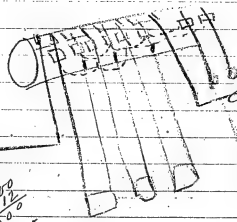
$$\begin{array}{r} 2500 \\ 150 \\ \hline 170 \end{array}$$



$$\begin{array}{r} 277 \\ 100 \end{array}$$

$$\begin{array}{r} 27700 \\ 3 \\ \hline 83100 \\ 20 \\ \hline 66200 \end{array}$$

50000



$$\begin{array}{r} 40 \\ 320 \end{array}$$

$$\begin{array}{r} 1500 \\ 300 \\ \hline 4500 \end{array}$$

$$\begin{array}{r} 2500 \\ 500 \\ \hline 2500 \\ 3000 \end{array}$$

60

$$\begin{array}{r} 276 \\ 12 \\ \hline 110 \\ 3 \\ \hline 45 \end{array}$$

$$\begin{array}{r} 277 \\ 5 \\ \hline 1385 \\ 3 \\ \hline 4154 \end{array}$$

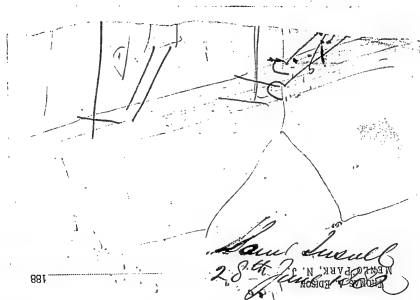
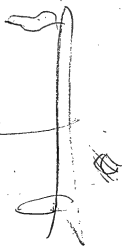
$$\begin{array}{r} 12000 \\ 7200 \end{array}$$

$$\begin{array}{r} 2500 \\ 3 \\ \hline 7500 \end{array}$$

$$\begin{array}{r} 1000 \\ 1000 \\ \hline 48 \end{array}$$

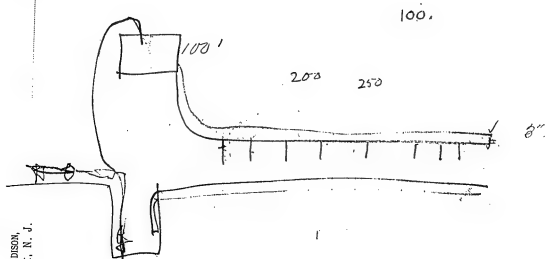
5

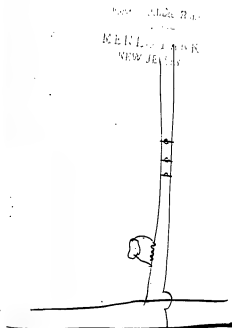
Archives
 Paul Insull
 22nd June 1882



Paul Insull
 28th June 1882
 1882

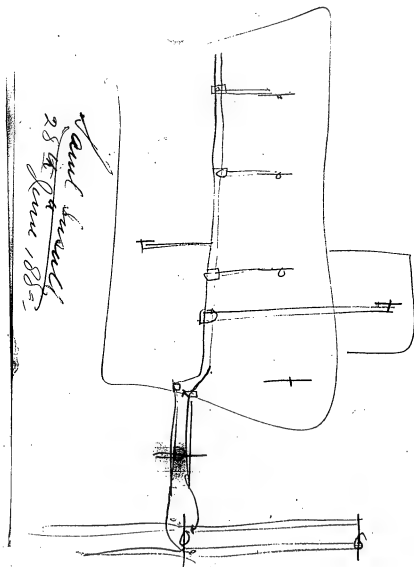
THOMAS A. EDISON,
MENLO PARK, N. J.





666
686
886
066
266
852

isolated
1 amp output
28th June 82



THOMAS A. EDISON,
MENLO PARK, N. J.

188

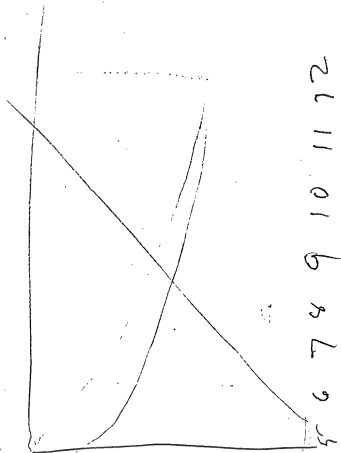
2540 ft -

15	Light	10	(1)
60		10	(2)
150	4	900	
250	4	850	

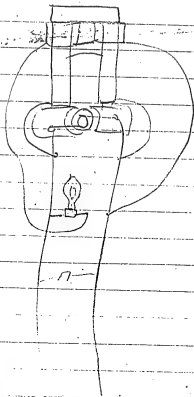
S. S. S.
Genl. Order

His Son in Law

Mexico/Went
Cuba
Gowanus Coal



1
2
3
4
5
6
7
8
9
10
11
12



Sand. Busch
29th June, 1882

T. A. EDISON,

Menlo Park, N. J., 1880.

Electricity on gun

Prodie

Proc Rays XX 472

Phil Mag (4) XLiv 470

T. A. EDISON,

Menlo Park, N. J., 1880.

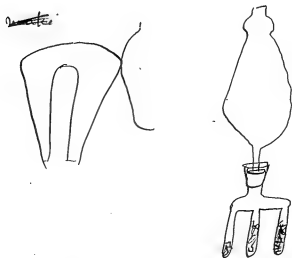
Sal ammoniac retacked lime,
a large excess of lime should be employed
1 part by weight of ^{port lime} Sal Ammoniac mixed with
2 parts by weight of Caustic Lime slaked to a
fine powder - mix well - put in Capron
jar and heat over Bunsen burner with gauge
interposed - drying tube should be
filled with small lumps of quicklime
(unslaked)

10th Aug 80
L.H.

10th Aug 80
L.H.

T. A. EDISON,

Menlo Park, N. J., _____ 1880.



CO_2 absorbed by heated potassium
176 Fahr
also heated β alums or Hydrate,
also absorbs CO_2
Phosphorus balls or K metal
so for O Phosphorus to be heated
W. H. L. S. S. S.
H. H. L. S. S. S.

Mr Edison:

I have made the solution of ferrocyanide of iron, sulphate of iron and SO_4 in many different proportions and in each case the color changes to a whitish crystalline color under the heat.

Then at a suggestion from Watts Dictionary, I dissolved ferrocyanide of iron in oxalic acid. This solution saturated with ferrocyanide gives fair appearing result, but under the heat it changes to a reddish ciner-hue, as if destroyed.

Respectfully

Charles L. Bristol.

August 24.

Mr. T. A. Edison.

Present.

Long 24.82
B. 12.72

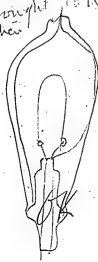
Oct 4 1962

Solid glass.



Carbon ground with fine
silica brought to micron size
which is then
glass melt.

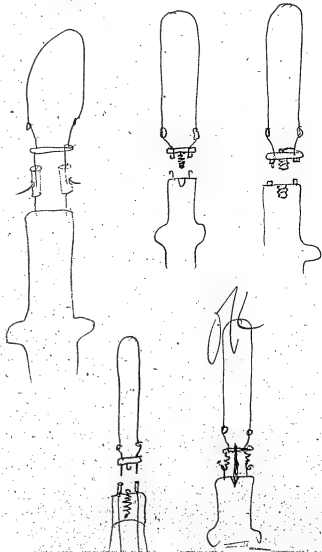
Use this process
Coat carbon
with Zircon
Silica, no
etc. take out
& put in
glass.



insert into
to chg glg
(10)
P.P.

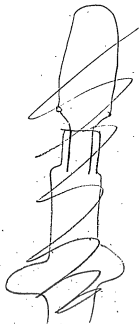
Treat paper by hydrofluoric
acid to (Kohmentz)

Oct 4 1962



Mix Collodion with
parachinized jelly of
Cellulose & see if it
don't make a good
Solid m. C.

Carbonyl lampwick



Try thread paper etc
in Hydrofluoric acid.

The acid will go away
itself & render washing
unnecessary

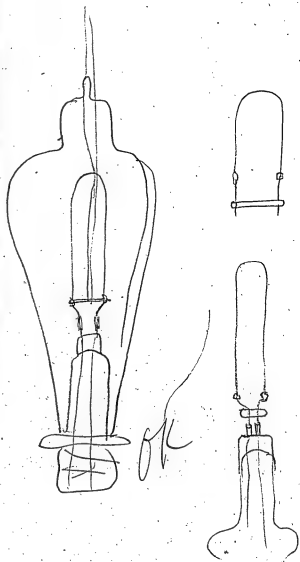
Try phosphoric acid for
parachutizing

Correct



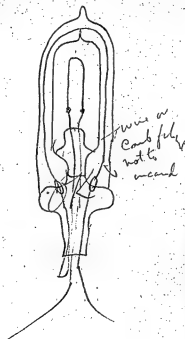
glass tubes
with hole
just enough
Carbon goes
through it
will polymerize
when Carbon
cold in pumps
& thus prevent
Carrying

Patent two fibres in one
globe that can be lighted
separately, then exhaust &
bring up both then if uneven
pass cyanogen or H Carbon gas
or Chl Carbon prefibly cyanogen
as it leaves no white &
equalize them then connect
together in one socket
so as to get 20 candles
from both & ~~flame~~ 500 shw
~~if one~~



Patent

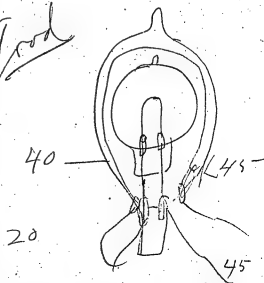
Oct 4/1882
1249



wire or
carb. fil.
not to
wound

Carb. filament
The wire that goes into
the outer fiber has a
greater surface than
the filament.

Good



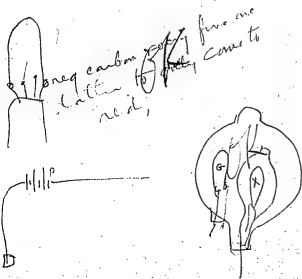
8 dia 13. long

$$\begin{array}{r} 24 \\ 13 \\ \hline 72 \\ 24 \\ \hline 31 \end{array}$$

$$\begin{array}{r} 9 \quad 290 \\ \hline 290 \end{array}$$

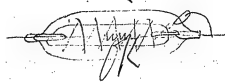
glass partition. see if the
in fact patent.

Look at Spark gauge see if
there is blocking of plat
wire in glass where sealed



X neg. lay a layer a film of
— after lamp to change
outside of X lamp present
carrying

A sample wire only
Carried at one end
with Carried. ble
surface & only carried
may do instead of
continuous wire with
current,



size A

"Electricity"
- Dr. W. G. A. "



to charge
outside a
Copper wire
being used
in water globe

Nov 11, 1887

Riv with tract out 68

9⁰⁰ AM.

Steam 70

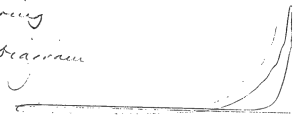
Riv with tract in 66

Back end.

Steam 70

Holt spring

Sand diagram



Nov 11, 1887

Riv with tract out 68

9⁰⁰ AM.

Steam 70

Riv with tract in 65

Back end

Steam 70

Holt spring.

Sand diagram



Nov 11, 1887

Riv with tract out 68

9⁰⁰ AM.

Steam 70

Riv with tract in 66

Steam 70

Grand end.

Holt spring.

Sand diagram



Nov 11, 1882
Rev with Hack on it 68 9²³/₄ AM
Steam 71
Rev with Hack in 65
Steam 71 Front end.

Holt spring

Saddle Diagram

Nov 11, 1882 9⁴⁵/₄ AM
Engine & Steam connections in
Machine belts off.
Rev 70
Steam 70 Front end.

Nov 11, 1882.
Engine & Steam connections in
Machine Belts off. 9⁵⁰/₄ AM
Rev 70
Steam 71 Back end

Nov 11, 1882

10,455 lbs
Steam 70
Bar 64

Engine & Car

Going down grade
500 ft from hole

Back end

Engine & Car

10,474 lbs
Steam 70
Bar 68

2nd Hunt down grade
5000 ft from hole

Engine & Car

10,483 lbs
Steam 70
Bar 64

Hoist Car going up grade
7000 ft from hole

Back end

10 5-1 am
Steam 70
Engine & Car En 67

Circuit broken
Engine at Hois Cut.

10 5-3 am
Steam 70
Engine & Car En 68

Hois Cut coming down grade

6900 ft from Cable

10 5-5 am
Steam 70
Engine & Car En 64

Melet Cut coming up grade,
4000 ft from Cable

Eugene Har

10 57 edmc

Altitude 70

Bar 68

500 ft away, coming at angle

10 59 edmc

Altitude 70

Bar 68

Circuit Broken

11 01 edmc

Altitude 70

Bar 70

Circuit Broken

Bar 68

Bar 70

11:30 am
Stem 72
68

Circuit Broken

Back end

11:50 am
Stem 74
70

Circuit Broken

Back

7/00121 Ch. 882
Rev with Tracer out 67
Stem " " in 76
Stem 70
Holt Spring.

Back end
8:38 AM

7/01 Double diagonal

Nov 14 1882
 Rensch tract out 67
 Stamm 76
 Rensch tract in 70
 Stamm

Trout and
 8550 ft.

Vol 6 Spring

Double diagram

No 2

Trout out	No 1	66	Red	Stamm 10
" in	" 2	67	"	" 76
Trout "	" 3	64	Red	5,200 ft. Stamm 76
" Stamm "	" 4	65	"	5,200 ft. Stamm 76

Vol 6 Spring

Trout and

No 3

T. A. EDISON,
65 Fifth Avenue,
New York

Rev.

20

Angelo

Caras

Mr. Thomas A. Edison

H 45 Cable 29 7 Proctor
H 46 1st Cab 29
H 47 2d Brick 29
H 48 77 Mable 29
H 49 2000 Price 29
H 50 Pump House 29
Garcia Proctor

H 51 starting a a Pump House
H 52 2 Mable 29
H 53 1st Cab 29
H 54 77 Mable 29
H 55 77 29
H 56 1st Cab 29
H 57 Cable 29 C.B.

~~Est~~ distance 2 miles. within few feet more or less.

7 people on ~~Car~~
2 on Loco —
passenger Loco & Car —

20

Rands Van
Geo. & Pan
car

Re 78:77-77

76,204,882

#1 Ar. P. 20.4.79, P 17.28 1st Trichinini

F₂ 84.7. 26.88 7² Field

3, " 25.7.1. 30.40 3^d Kuch

Frank and
John & Lucie

1040 ASD

Feb 21 5⁰⁰ 10. P. 12.92
 Res 78 77 77 = 2 : 78 N.P. 24.96 70 1,082
 Strain 50. 3 : 10. N.P. 32.

1st Friction

9-1-1944

3.1. Nach "

Багн сумул

Faltstein

1040 a 24

Constant = .0421166 which multiplied by stream pressure or
inches = Δp

Feb 24 3.
 Res 80 79 79
 Strain 51

7/01 204, 1882

Back End

to the spring

 $10^{4.5} \text{ g}$

Av. Russ 5.7[#] H. P. 19.15

4.2 ✓

$\#1 = .78$
 $\#2 = .11$
 $\#3 = .141$

Area .74
 3 Area 1.15
 3 Area 1.3

8

Area =

1st 2nd 3rd
Rev 80 79 79
at Ham 51

Nov 20 1882

1 7
2 7
3 7

1st Junction
2nd Field in
3rd Track on

Front end
Field 5/1880
10.45 a.m.

1st A.P. 5.11.1880
2nd A.P. 7.29.1880
3rd A.P. 7.26.1880

4.17

1st 2nd 3rd
Rev 78 77 77

Nov 20 1882

1st Junction
2nd Field on
3rd Track on

Back end
Field Spring

10.50 a.m.

1st A.P. 5.11.1880
2nd A.P. 7.29.1880
3rd A.P. 7.26.1880

4.1

1st 2nd 3rd
Rev 78 77 77

Nov 20 1882

1st A.P. 5.85 A.P. 18.12 1st Junction
2nd A.P. 8.76 A.P. 28.29 2nd Field
3rd A.P. 9.51 A.P. 30.7 3rd Track

Front end
Field Spring

10.50 a.m.

1 7
2 7
3 7

4.1

$$\begin{array}{l} 1 \text{ Area} = 8 \\ 2 \quad = 12 \\ 3 \quad = 13 \end{array}$$

$$\begin{array}{l} 1 \text{ Area} = 7 \\ 2 \quad = 11 \\ 3 \quad = 12 \end{array}$$

Front end
Freight Engine 3 loaded cars
18 Tons

12.10 Tons
30 lb springs
11.11.52
Run 74

At cable down grade

Av. Press 18. # A.T. 55.8

Back end
Freight Engine 3 loaded cars
18 Tons

11.10 Tons
30 lb springs
11.11.52

Run 74
At cable down grade

Av. Press 17.22 A.T. 3478

4.11

Front end
Freight Engine 3 loaded cars
18 Tons

11.13 Tons
30 lb springs
11.11.56

Run 76

Av. Press 17.37 A.T. 55.41

700 ft away from cable down grade
4.11

$$C_{na} = 1.06$$

2.1

2.1

Back end
Freight Engine & Bladed cars
18 Tons

11:13 AM
Gold Springs
11:15 AM 50

Av. Pass 19.62 H.P. 62.58

4.17
700 ft away from cable down grade

Front end
Freight Engine & Bladed cars
18 Tons

11:15
Gold Springs
11:15 AM 50
76

Av. Pass 18.06 H.P. 57.61

4.15
1700 ft away from cable down grade

Back end
Freight Engine & Bladed cars
18 Tons

11:15 AM
Gold Springs
11:15 AM 50
76

Av. Pass 20.07 H.P. 61.02

4.18
1700 ft away from cable down grade

2.73

2.5

2.8

Throat end
Freight Engine & 3 loaded cars
18 Tons.

11.17 AM
Solt Spring
Hawm 5-6
Rm 74

Av. Press 16.77 H.P. 51.98

4.11
4200 ft away from hole down grade

Back end
Freight Engine & 3 loaded cars
18 Tons.

11.19 AM
Solt Spring
Hawm 5-6
Rm 74

Av. Press 17.90 H.P. 55.61

4.13
4200 ft away from hole down grade

Throat end
Freight Engine & 3 loaded cars
18 Tons.

11.18 AM
Solt Spring
Hawm 4-5
Rm 76

Av. Press 18.3 H.P. 58.37

4.18
4800 ft away from hole up grade

2.3

2.5

2.55

Back end
Freight Engine & loaded car
18 tons.

1138 am
30 lbs. pressure
Steam 49
Bar 46

Av. Press 20.07 A.T. 61.02

412
4800 ft away from cable up grade

Front end
Freight Engine & loaded car
18 tons.

1120 am
30 lbs. pressure
Steam 49
Bar 74

Av. Press 18.42 A.T. 57.10

415
5700 ft away from cable up grade

Back end
Freight Engine & loaded car
18 tons.

1120 am
30 lbs. pressure
Steam 49
Bar 74

Av. Press 19.98 A.T. 61.93

414
5700 ft away from cable up grade

2.8

2.55-

2.8

Front end
Freight Engine & 3 loaded Cars
18 Tons.

1122 06/102
30.66 x 30.66 = 47
74

Av. Press 18.78 A.P. 58.21

6100 ft away ^{4.15} from cable up grade

Back end
Freight Engine & 3 loaded Cars
18 Tons.

1122 Apr
30.66 x 30.66 = 50
74

Av. Press 20.01 A.P. 62.03

6100 ft away from cable up grade

Front end
Freight Engine & 3 loaded Cars
18 Tons.

1124 Apr
30.66 x 30.66 = 50
76

Av. Press 18.78 A.P. 57.9

6500 ft away ^{4.15} from cable up grade

2.6

2.8

2.6

Back end
Freight Engine & Spaded Cars
18 Tons

1124 0.11
Full spring 50
Dec 76

Av. Press 19.35 H.P. 61.72

6500 ft away ^{4.18} from cable up grade

Front end
Freight Engine & Spaded Cars
18 Tons

1125 0.11
Full spring 50
Dec 74

Av. Press 18.33 H.P. 56.73

6700 ft away ^{4.18} from cable down grade

Back end
Freight Engine & Spaded Cars
18 Tons

1125 0.11
Full spring 50
Dec 74

Av. Press 19.57 H.P. 60.72

6700 ft away ^{4.18} from cable down grade

2.78

2.54

2.7

Front end
Freight Engine & Shaded Cars
18 Tons

1127 1/2 m
S. P. 112 50
74

Av. Press 18.06. A.P. 55.78

7300 ft away ^{4.15} from Cable down grade

Rear end
Freight Engine & Shaded Cars
18 Tons

1127 1/2 m
S. P. 112 50
74

Av. Press 18.27 A.P. 56.63

7300 ft away ^{4.15} from Cable down grade

Front end
Freight Engine & Shaded Cars
18 Tons

1130 1/2 m
S. P. 112 50
78

Av. Press 17.94. A.P. 58.66

8000 ft away ^{4.15} from Cable down grade

2.5

4.55

2.5

Back end
Freight Engine & Loaded Car
18 Tons.
Av. Tress 18.9 A.T. 61.80

11.30 AM
30 ft. spring
Steam 78

8500 ft away from cable down grade
4.13

Front end
Freight Engine & Loaded Car
18 Tons.
Av. Tress 17.07 A.T. 55.81

11.31 AM
30 ft. spring
Steam 78

9300 ft away from cable down grade
4.13

Back end
Freight Engine & Loaded Car
18 Tons
Av. Tress 17.4 A.T. 56.89

11.31 AM
30 ft. spring
Steam 78

9300 ft away from cable down grade
4.13

2.35-

2.45-

2.64

Front end 11 33 AM
Freight Engine & Loaded Car 50 lbs per sq ft
18 Tons Run 76
Av. Press 19.5 H.P. 62.20

930 ft away, coming up grade

Back end 11 33 AM
Freight Engine & Loaded Car 50 lbs per sq ft
18 Tons Run 76
Av. Press 19.7 H.P. 62.84

930 ft away from cable coming up grade

Front end 11 35 AM
Freight Engine & Loaded Car 50 lbs per sq ft
18 Tons Run 76
Av. Press 19.5 H.P. 61.42

900 ft away from cable coming up grade

2.7

2.75-

2.73

Back end
Freight Engine & Shaded Cars
18 Trns.
11:35 AM
30th Apr 1900
No. 75
Av. Press 20.07 H.P. 63.22

9100 ft away from cable coming up grade

Front end
Freight Engine & Shaded Cars
18 Trns.
11:37 AM
30th Apr 1900
No. 74
Av. Press 19.5 H.P. 60.45

8800 ft away from cable coming up grade

Back end
Freight Engine & Shaded Cars
18 Trns.
11:37 AM
30th Apr 1900
No. 74
Av. Press 20.22 H.P. 62.68

8800 ft away from cable coming up grade

2.8

2.7

2.8

Front end
Freight Engine & 3 loaded Cars
18 Tons

11.38 1/2
Gold Springs

Av. Pines 19.07 A.P. 60.72

8400 ft away from Cabci coming up grade

Back end
Freight Engine & 3 loaded Cars
18 Tons

11.39 1/2
Gold Springs

Av. Pines 20.1 A.P. 62.31

8400 ft away from Cabci coming up grade

Front end
Freight Engine & 3 loaded Cars
18 Tons

11.41 1/2
Gold Springs

Av. Pines 19.65 A.P. 62.68

8000 ft away, coming down grade

2.73

4.8

4.8

Back end
Freight Engine & Shaded Cars
18 Tons

11 1/2 Adm
Salt Springs

Av. Press 19.2 A.P. 6/24

8000 ft away coming down grade

Front end
Freight Engine & Shaded Cars
18 Tons

11 1/2 Adm
Salt Springs

Av. Press 17.55 A.P. 5/4

7300 ft away coming down grade

Back end
Freight Engine & Shaded Cars
18 Tons

11 1/2 Adm
Salt Springs

Av. Press 19.8 A.P. 6/38

7300 ft away coming down grade

3.76	
------	--

3.66	
------	--

2.7	
-----	--

Front end
Freight Engine & Loaded Car
18 Tons.

11,466 Cdn.
30 lbs. sprays

Av. Press. 17.94 H.P. 57.22

6800 ft away coming down grade

Back end
Freight Engine & Loaded Car
18 Tons

11,466 Cdn.
30 lbs. sprays

Av. Press. 17.94 H.P. 57.22

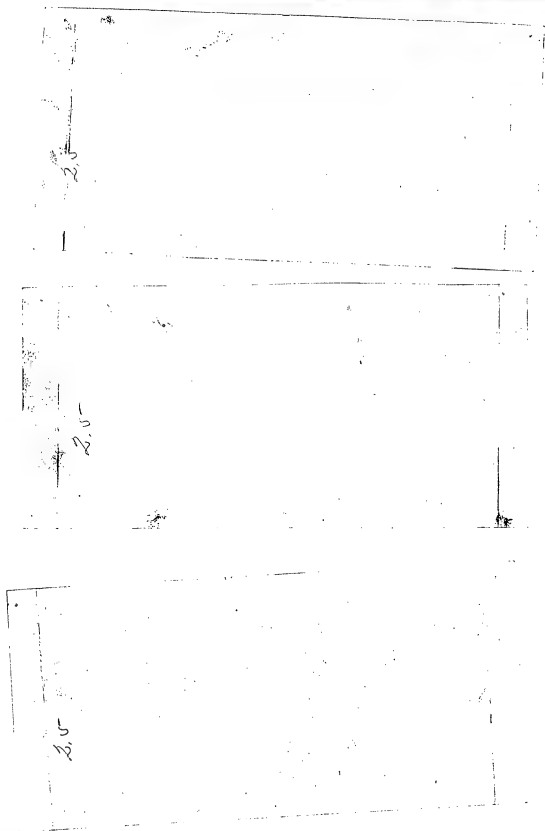
6800 ft away coming down grade

Front end
Freight Engine & Loaded Car
18 Tons.

11,466 Cdn.
30 lbs. sprays
H.C.M. 50

Av. Press. 18th H.P. 57.12

4.15
6000 ft away coming down grade



Back end 11.42 AM
Freight Engine & Loaded Car 30 lb spring
18 Tons Per 76
Av. Press 18.8 H.P. 57.42

6000 ft. away coming down grade

Front end 11.46 AM
Freight Engine & Loaded Car 30 lb spring
18 Tons Per 74
Av. Press 18.9 H.P. 58.59

5300 ft away coming up grade

Back end 11.48 AM
Freight Engine & Loaded Car 30 lb spring
18 Tons Per 74
Av. Press 19.5 H.P. 60.05

5300 ft away coming up grade

2.5

2.6

2.75

Front End 11.50 dm
30 lb. spring
Freight engine & Bladed Cars 11.50 - 5.0
18 Tons. Rev 75-
Av. Pines 19.5 A.P. 61.42

4600 ft away coming up grade

Back end 11.50 dm
30 lb. spring
Freight engine & Bladed Cars 11.50 - 5.0
18 Tons. Rev 75-
Av. Pines 20.94 A.P. 64.96

4600 ft away coming up grade

Front End 11.51 dm
30 lb. spring
Freight engine & Bladed Cars 11.51 - 5.0
18 Tons. Rev 74
Av. Pines 18.9 A.P. 61.04

4700 ft away coming up grade

2.7

2.9

2.65-

11.57 ^{11.57} ^{11.57} ^{11.57}
 Back end 30 ft. spring
 Freight Engine & Loaded Car
 18 tons
 Av. Press 19.7 H.P. 6363

4.13
 4200 ft away coming up grade

11.33 ^{11.33} ^{11.33} ^{11.33}
 Front end 30 ft. spring
 Freight Engine & Loaded Car
 18 tons
 Av. Press. 21.87 H.P. 7064

3400 ft away coming up grade

11.53 ^{11.53} ^{11.53} ^{11.53}
 Back end 30 ft. spring
 Freight Engine & Loaded Car
 18 tons
 Av. Press. 22.95 H.P. 7422

4400 ft away coming up grade
 11.13

3.2

305-

2.75-

11.55 AM
Front end
Freight Engine & loaded car
18 Tons
Av. Press 19.30 H.T. 61.72

4.16
2500 ft away coming up grade

11.54 AM
Back end
Freight Engine & loaded car
18 Tons
Av. Press 19.8 H.T. 63.16

4.18
2500 ft away coming up grade

11.54 AM
Front end
Freight Engine & loaded car
18 Tons
Av. Press 19.30 H.T. 64.16

1700 ft away coming up grade.

2.7

2.76

2.82

Back end
Frigh Engine & Shaded Car
18 Fms.

11.58 11.10
Gold Spring

Av. Press 20.94 D.T. 65.96

1700 ft away coming up grade

Front end
Circuit broken

11.58 11.10
Gold Spring

Av. Press 10.47 D.T. 34.3

4.15

Back end
Circuit broken

11.58 11.10
Gold Spring

Av. Press 11.19 D.T. 36.65

4.15

2.9

1.45

1.55

12 00 PM
Soft Spring
Circuit broken
Rate 15"
Av. Press 9.9" A.P. 31.18

12 00 PM
Soft Spring
Circuit broken
Rate 75"
Av. Press 10.83 A.P. 34.11

12 02 PM
Soft Spring
Circuit broken
Rate 79
Av. Press 10.17" A.P. 33.74

137

15

141

Back end
Circum. broken

1202 RPM
50 lbs BP
50

Av. Lines 10.85 H.P. 35.90

Rev 79

observing machine
w/ log

Front

78 Rev - 50 lbs

Av. Lines 6.1
H.P. 20.

H. 15

observing
machine w/ log

Back 50 lbs BP.
78 Rev

Av. Lines = 4.9
H.P. = 16.

Cylinder
16 X 42 Piston rod $2\frac{1}{2}$

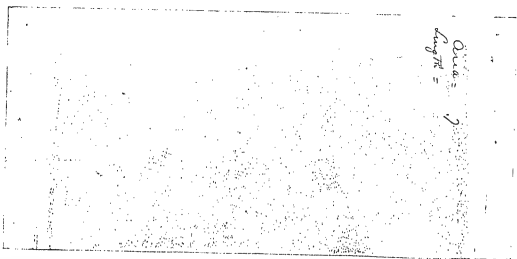
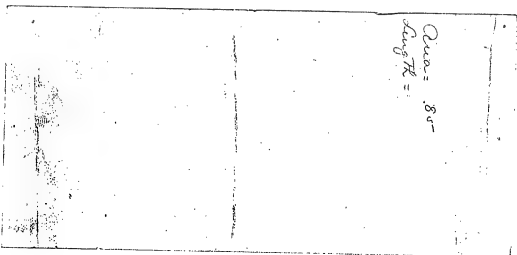
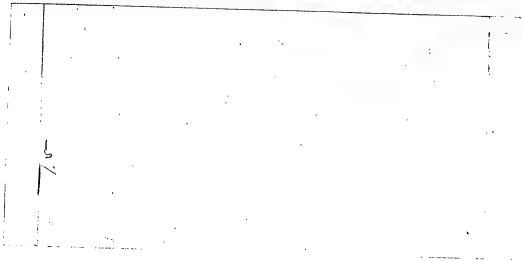
30 lbs spring

Friction of Engine + 4
dynamos - no field

constant = .0421166
constant x revs and steam pressure
= H.P.

2

L. 2



Back-

Spud

3

4.21

4 Av. P. Print-
H. P. 6.9

Spud

4.1

Back

40 1/2 Rev.

30 spg

red hollow

50 AP.

field on

#1 Av. P. 5.4 H. P. 17.05
#2 " " 5.7 H. P. 18.52
"one line is field on
" " " " off

4.17

$$Aua = 95$$

$$Aua = 95$$

$$Aua = 95$$

$$3.8$$

admission

Front

30 spring

50 lbs B.p.

Field on

77 1/2 Rev

#1 Av. Puss 576 H.T. 18.72
 #2 " " 504 H.T. 16.38
 #3 one line field on
 #4 other " " off

6

BP 50

30 spring

Front

78 Rev both Cases

1st field on -

2nd Track on -

#1 Av. Puss 576 H.T. 18.72
 #2 Av. Puss 678 H.T. 19.84

1

4.1

Back

BP 50

30 spring

78 Rev both Cases

1st field on

2nd Track on

#1 Av. Puss 576 H.T. 18.20
 #2 Av. Puss 678 H.T. 20.8

4

4.14

$$\frac{1}{1} \text{ Ana} = 8$$

$$\frac{2}{2} \text{ Ana} = 9$$

$$\frac{1}{1} \text{ Ana} = 8$$

$$\frac{2}{2} \text{ Ana} = .85$$

$$\frac{1}{1} \text{ Ana} = 1000 - 8$$

$$\frac{2}{2} \text{ Ana} = 11 - 7$$

1/ Av. Press 6.66 H.P. 21.77
3 " " 6.87 H.P. 22.76 78 Rev B.P. 50

front

1st Trade in

2nd " " 3 minutes

9

4.16

Br-de

78 Rev

50 BP

1st Trade in

2nd " " 3 minutes

1/ Av. Press 6.51 H.P. 21.28

3 Av. Press 6.09 H.P. 19.91

10

4.18

Av. Press 8.4[#]
H.P. 27.13

77

front

443.

11

4.12

$$Area = 1.17$$

$$Area = .91$$

$$Area = .80$$

$$Area = .92$$

$$Area = .90$$

Area

brown smelly wing with hatched in previous card

Q. L. 2.95-
H. T. 25.71

77 front

443

12

Q. L. 11.13
H. T. 35.55

Back

76 Rev.

444 pm

13

4.17

Q. L. 10.6
H. T. 33.83

front

444 pm -

76 Rev

14

4.13

Area = 146

Area = 108

Area = 11

Av. Tress 17.58 75 Rev
A.T. 55.42 front 4.46 pm

15

Av. Tress 18.8 75 Rev -
A.T. 57.64 Back 4.46 AM

16

Av. Tress 15-
A.T. 49.5 front

79 Rev
4.47 $\frac{1}{2}$ pm

17

$Q_{ua} = 2.04$

$Q_{ua} = 2.55$

$Q_{ua} = 2.4$

Av. Press 15.37 Back
St. P. 51.86

79 Rev
447 $\frac{1}{2}$ pm

16

4.17

Av. Press 14.70 Front
St. P. 47

76 Rev
449 pm

19

4.1

Back
Av. Press = 16.2
St. P. = 51.8

76 Rev
4.49 PM

20

4.16

Area = 2.25
Length =

Area = 2.01
Length =

Area = 2.14

Av. Puss 10.17
H.T. 32.86 Front

76 Rev

450 $\frac{1}{2}$ pm

21

Av. Puss 11.71
H.T. 32.37

Back

76 Rev -

450 $\frac{1}{2}$ pm

22

Av. Puss 15.66
H.T. 49.98

Front

76 Rev

452 $\frac{1}{4}$ pm

23

$$Q_{ua} = 1.4$$

$$Q_{ua} = 1.5$$

$$Q_{ua} = 2.17$$

Av. Press 16.86
H.P. 53.77

452 $\frac{1}{4}$ pm

76 Rev

24

4.18

Av. Press 15.21
H.P. 48.23

Front

75 $\frac{1}{2}$ Rev

453 $\frac{1}{2}$

25

4.14

Av. Press 17.06
H.P. 54.2

Back

75 $\frac{1}{2}$ Rev

453 $\frac{1}{2}$

26

4.15

$$Q_{ua} = 2.4$$

$$Q_{ua} = 2.1$$

$$Q_{ua} = 2.35$$

Av. Pines 15.27
H.T. 48.76 Front

76 Rev

455 $\frac{1}{2}$ pm

H.1

24

Av. Pines. Buck
H.T. 15.93
50.84

76 Rev
455 $\frac{1}{2}$ pm

H.14

24

Av. Pines. 16.14
H.T. 50.16 Front

Rev 74

457 $\frac{1}{4}$

H.12

24

$Qua = 2.22$

$Qua = 2.2$

$Qua = 2.09$

Av. Puss 16.7 Back
H.P. 51.9

Rev 74
45 $7\frac{1}{4}$ pm

30

4.16

Av. Puss 10.14
H.P. 32.23

Back Rev 75 $\frac{1}{2}$
45 $8\frac{3}{4}$ pm

4.2

31

Av. Puss 9.45 Front
H.P. 29.25

Rev - 75 $\frac{1}{2}$
45 $8\frac{3}{4}$ pm

4.12

32

$Q_{ua} = 18$

$Q_{ua} = 142$

$Q_{ua} = 2.32$

Rev. Puss 9.2
29.44

Burde

Rev 77.

501 pm

33

4.2

Rev. Puss 9.6
H.T. 30.72 front

501 pm -

Rev 77

7 people in Car
2 in Loco -

34

4.15

Rev. Puss 9.27 29.44
5.70 18.4 Kent.
200 24.2

1 only truck hammer 77 Rev
2nd Without truck or field
3rd with field - madder

35

4.2

$$\begin{aligned} \text{Area 1} &= \\ \text{Area 2} &= \\ \text{Area 3} &= \end{aligned}$$

$$\begin{aligned} \text{Length} &= \\ \text{Width} &= \\ \text{Height} &= \end{aligned}$$

$$\text{Area} = 135$$

$$\text{Area} = 18$$

Av. Puss 6.3 Buck
H.P. 20.4

77 Rev

36.

4.2

#1 Av. Puss 9.03 H.P. 28.8 1st 77 Rev
#2 Av. Puss 7.95 H.P. 20.5 2nd 77 Rev
#3 Av. Puss 6.12 H.P. 19.7 3rd 77 Rev
Trade in
2nd Trade off Field on
3rd Field off

3.4

37

4.15

#1 Av. Puss 10.02 H.P. 32.8 1st 77 Rev
#2 Av. Puss 7.05 H.P. 24.1 2nd 77 Rev
#3 Av. Puss 5.7 H.P. 18.2 3rd 77 Rev
Trade in
2nd Trade off Field on
3rd Field off =



38

4.2

Area = 60, post card
 = 9
 length =

$$\begin{aligned} 3 \text{ C.I.S.A.} &= .8 \text{ v-Amp/F} \\ 2 &= 1.1 \\ 1 &= 1.25 \end{aligned}$$

3 Area = 8
 2 Area = 100
 1 Area = 140

Mr. Edison

Nov. 22/82

Here are the first set
of cards with passage
Chronotype

No Twenty

Chas. L. Smith

Taken Sunday 19th

W.A. Edison, Ege

Nov. 23/82

I presume you'll be cards
written with freight loco.

The leakage is but a small
part of what it was on

Sunday. I cannot under-
stand why the field requires
so much power.

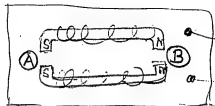
Yours

Chas. F. Smith

20.

Eight 2000 years

Important
Experiments



George Gibbs
Dec 1st
1892

Like poles opposed:—

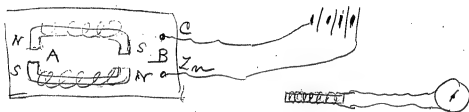
Exp. III - With coil and iron core. —

Passing coil in at	(A)	deflection —	right.
" " out "	(A)	" —	left.
" " in at	(B)	" —	left.
" " out "	(B)	" —	right.
" " in "	(A)	" —	right.
and through out —	(B)	" —	left.

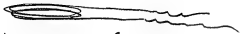
Then, — reversing coil end for end,
pass back in at (B) — left — through and
out at (A) right.

Reversing the coil end for end, reverses
the direction of deflection in each
case.

Without iron core the directions of
deflection are the same in each case
but magnitude is not nearly so great.
With iron core the deflection is very
great, showing that the core very
much increases the induced current.



With coil and soft iron core, and magnets coupled up as shown with unlike poles opposite, I obtained no deflection in galvanometer when lines of force were cut by coil passing between poles. But if the coil was placed through nearer one pole than the other a slight deflection was observed, due to unbalanced magnetic forces.

I also tried passing through the magnets arranged as above a piece of wire looped several times around either a wooden or iron core, thus. — 

The results were the same as with the coil.

The iron core in these cases merely increases the strength of the induced current. (where any).

$$\begin{array}{r} 365 \\ 730 \\ \hline 9180 \\ 480 \\ \hline 40 \\ 520 \end{array}$$

$$7 \overline{) 250} \begin{array}{l} 3 \\ 3 \end{array}$$

$$\begin{array}{r} 850 \\ 1150 \\ 3000 \\ 750 \\ \hline 5750 \end{array} \quad \begin{array}{l} \text{Lamps} \\ 250 \\ \hline 500 \end{array}$$

$$\begin{array}{r} 35 \\ 4 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 139 \\ 556 \\ 69 \\ \hline 365 \\ \hline 625 \end{array}$$

$$\begin{array}{r} 250 \\ 750 \end{array}$$

$$\begin{array}{r} 35 \\ 4 \\ \hline 140 \\ 840 \\ 365 \\ \hline 4200 \\ 5040 \\ 2520 \\ \hline 2520 \\ 3066 \\ 25 \\ \hline 86 \\ 206 \\ 198 \end{array} \quad (139)$$

6

$$\begin{array}{r} 365 \\ 182 \\ \hline 365 \\ \hline 547 \end{array}$$

$$\begin{array}{r} 250 \\ 6 \\ \hline 1500 \\ 7500 \end{array}$$

14

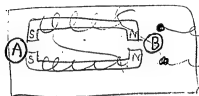
$$\begin{array}{r} 750 \\ 225 \\ \hline 3750 \\ 1500 \\ \hline 1500 \\ 16875 \end{array}$$

168

$$\begin{array}{r} 365 \\ 16 \\ \hline 2190 \\ 3650 \\ \hline 5840 \end{array}$$

$$\begin{array}{r} 281 \\ 200448 \\ 0500 \\ 051 \\ 91 \\ \hline 252 \end{array}$$

001



George Gibbs
Dec 1st
1882.

(+)

J. F. Ott

Exp IV — Wire loop with iron core.

Like poles opposed. —

In at (A) — deflection — left.

Out " (A) " right.

In " (B) " right.

Out " (B) " left.

In " (A) (left) through & out- at (B)

def. — (right).

Reversing loop end for end the deflection remains the same in each case above.

Passing coil from above down through at (B) (like poles repel). def. — right.

+ passing coil up — def. — left.

Same operation at (A) —

Down — left.

Up — right.

The results are the same in all cases if the iron core be omitted, except that the current induced is very weak.

Remarks: —

The induced current is not nearly so strong with the loops as with a coil, and unless the loops have an iron core, the deflection by galvanometer is very slight — only just perceptible & G.G. —

(1882.)

Try two Lead plates in Conc
Sol Sulphide Soda

hard to soft
Try Carbon ~~and iron~~ in hot
Sol Sulphide Soda

Try Copper plates & Iodide
potassium. also Copper plate
coated with Iodine after
roughening so as to make
Coating Iodide Copper use
Iodide pot Sol also SO_2
in another Experiment

Try Dye &
Antimony with {

UNBOUND NOTES AND DRAWINGS

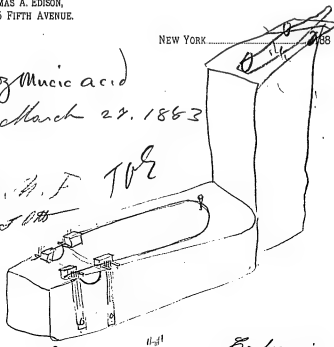
1883

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK

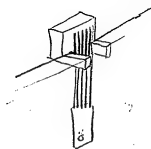
1 oz Mucic acid
March 24. 1883

M. A. F. T. E.
J. F. B.



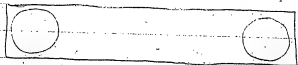
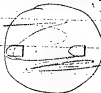
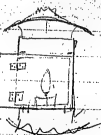
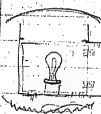
11-11

Carbonizing or
Hydrocarbon deposit



20 MAR 1883 20 MAR 1883

Mill Photographs 1883-03-29



top

07
41.14

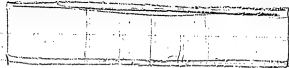
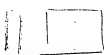
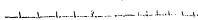
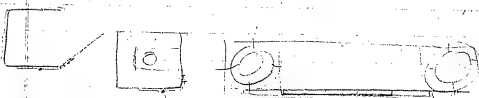
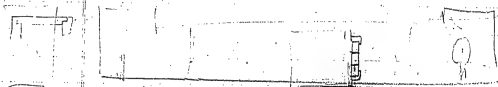
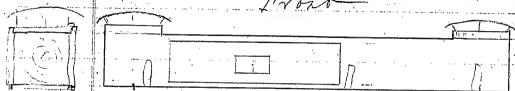


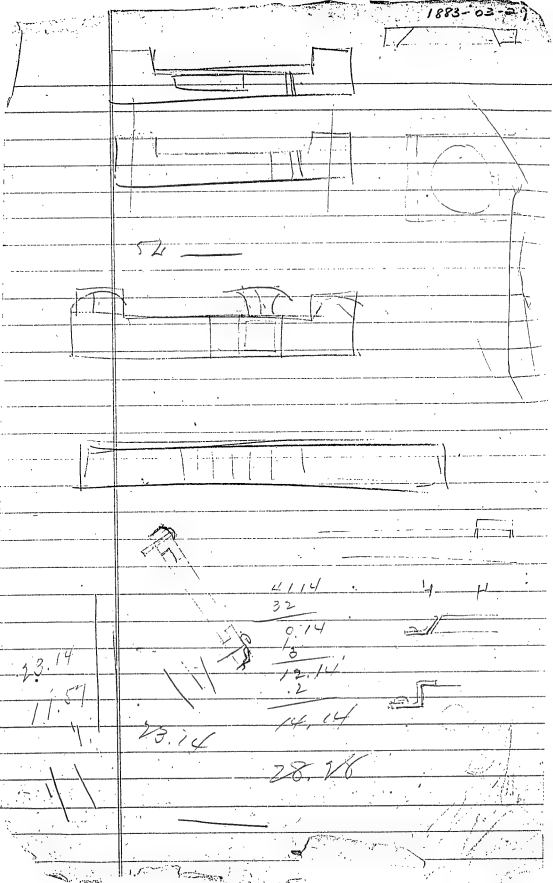
bottom

04.08

1893-03-29

Front

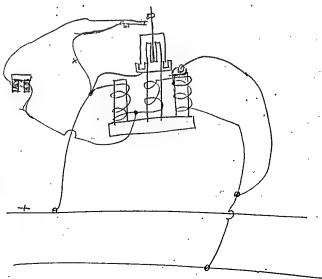




Miter

May 17, 1883

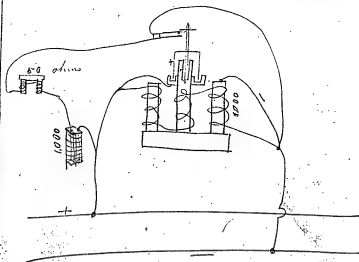
J. F. O.



May 17, 1883

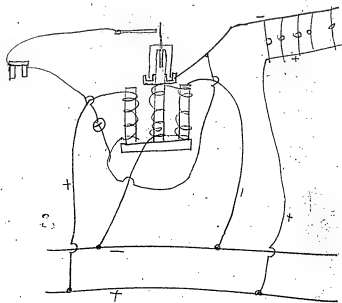
J. F. O.

Miter



Notes May 14, 1883

J.F.O.



Notes on Dynamos.

Class	Section Name	10' x 10' Triangle		Price of Iron Wire	Price of Fencing	Outside Measure	Inside Measure	Surface	Perimeter	Average Height in Feet	Area per Acre	Sewerage		100 ft. per acre	Acres per 100 ft.	Civ. Mils. per 100 ft.
		A	B									Flow	Cost			
100		10												4	2	35.28
55		30	4			5	12	14	21	21.00	32.00	.042	.057	4	4	10.86
110		60				10	24	28	44	22.00	32.00	.042	.057	4	4	10.86
55		120	8			20	48	56	88	22.00	32.00	.042	.057	4	4	10.86
110		150				30	72	84	132	22.00	32.00	.042	.057	4	4	10.86
55		300	16			60	144	168	264	22.00	32.00	.042	.057	4	4	10.86
110		240				100	480	560	880	22.00	32.00	.042	.057	4	4	10.86
55		600	32			200	1920	2240	1760	22.00	32.00	.042	.057	4	4	10.86
110		900				300	2880	3360	2640	22.00	32.00	.042	.057	4	4	10.86
55		1800	64			600	11520	13440	5280	22.00	32.00	.042	.057	4	4	10.86
110		2700				900	17280	20160	7920	22.00	32.00	.042	.057	4	4	10.86
55		3600	128			1200	23040	26880	10560	22.00	32.00	.042	.057	4	4	10.86
110		4500				1500	28800	34080	13200	22.00	32.00	.042	.057	4	4	10.86
55		7200	256			2400	46080	54880	17600	22.00	32.00	.042	.057	4	4	10.86
110		9000				3600	69120	83760	26400	22.00	32.00	.042	.057	4	4	10.86
55		14400	512			6000	115200	138240	44000	22.00	32.00	.042	.057	4	4	10.86
110		21600				9000	172800	207360	66000	22.00	32.00	.042	.057	4	4	10.86
55		36000	1024			12000	230400	276480	88000	22.00	32.00	.042	.057	4	4	10.86
110		54000				18000	345600	414720	132000	22.00	32.00	.042	.057	4	4	10.86
55		90000	2048			24000	460800	552960	176000	22.00	32.00	.042	.057	4	4	10.86
110		135000				36000	691200	837600	264000	22.00	32.00	.042	.057	4	4	10.86
55		270000	4096			48000	1152000	1382400	352000	22.00	32.00	.042	.057	4	4	10.86
110		405000				72000	1728000	2073600	528000	22.00	32.00	.042	.057	4	4	10.86
55		810000	8192			96000	2304000	2764800	704000	22.00	32.00	.042	.057	4	4	10.86
110		1215000				144000	3456000	4147200	1056000	22.00	32.00	.042	.057	4	4	10.86
55		2430000	16384			192000	4608000	5529600	1408000	22.00	32.00	.042	.057	4	4	10.86
110		3645000				288000	6912000	8376000	2112000	22.00	32.00	.042	.057	4	4	10.86
55		7290000	32768			384000	11520000	13824000	2816000	22.00	32.00	.042	.057	4	4	10.86
110		10935000				576000	17280000	20736000	3584000	22.00	32.00	.042	.057	4	4	10.86
55		21870000	65536			864000	23040000	27648000	5152000	22.00	32.00	.042	.057	4	4	10.86
110		32805000				1296000	34560000	41472000	7744000	22.00	32.00	.042	.057	4	4	10.86
55		65610000	131072			1728000	46080000	55296000	10304000	22.00	32.00	.042	.057	4	4	10.86
110		98415000				2592000	69120000	83760000	15456000	22.00	32.00	.042	.057	4	4	10.86
55		196830000	262144			3456000	115200000	138240000	20704000	22.00	32.00	.042	.057	4	4	10.86
110		295245000				5184000	172800000	207360000	31008000	22.00	32.00	.042	.057	4	4	10.86
55		590490000	524288			7372800	230400000	276480000	41600000	22.00	32.00	.042	.057	4	4	10.86
110		885735000				11059200	345600000	414720000	62400000	22.00	32.00	.042	.057	4	4	10.86
55		1771470000	1048576			16713600	460800000	552960000	83808000	22.00	32.00	.042	.057	4	4	10.86
110		2657205000				25070400	691200000	837600000	125696000	22.00	32.00	.042	.057	4	4	10.86
55		5314410000	2097152			33446400	1152000000	1382400000	167104000	22.00	32.00	.042	.057	4	4	10.86
110		7971615000				50169600	1728000000	2073600000	250688000	22.00	32.00	.042	.057	4	4	10.86
55		15943230000	4194304			66892800	2304000000	2764800000	334400000	22.00	32.00	.042	.057	4	4	10.86
110		23914845000				100339200	3456000000	4147200000	501760000	22.00	32.00	.042	.057	4	4	10.86
55		47829690000	8388608			133785600	4608000000	5529600000	668800000	22.00	32.00	.042	.057	4	4	10.86
110		71744535000				200678400	6912000000	8376000000	1002880000	22.00	32.00	.042	.057	4	4	10.86
55		143489070000	16777216			267878400	11520000000	13824000000	1604480000	22.00	32.00	.042	.057	4	4	10.86
110		215233605000				401817600	17280000000	20736000000	2406720000	22.00	32.00	.042	.057	4	4	10.86
55		430467210000	33554432			535673600	23040000000	27648000000	3208960000	22.00	32.00	.042	.057	4	4	10.86
110		645700815000				803510400	34560000000	41472000000	4813440000	22.00	32.00	.042	.057	4	4	10.86
55		1291401630000	67108864			1071347200	46080000000	55296000000	6426880000	22.00	32.00	.042	.057	4	4	10.86
110		1937102445000				1607024000	69120000000	83760000000	9640320000	22.00	32.00	.042	.057	4	4	10.86
55		3874204890000	134217728			2142688000	115200000000	138240000000	16089600000	22.00	32.00	.042	.057	4	4	10.86
110		5811307335000				3214022400	172800000000	207360000000	24134400000	22.00	32.00	.042	.057	4	4	10.86
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55		34867844010000	536870912			8570752000	460800000000	552960000000	64617600000	22.00	32.00	.042	.057	4	4	10.86
110		52291766015000				12856128000	691200000000	837600000000	96822400000	22.00	32.00	.042	.057	4	4	10.86
55		104583532030000	1073741824			17141248000	1152000000000	1382400000000	161244800000	22.00	32.00	.042	.057	4	4	10.86
110		156875298045000				25711872000	1728000000000	2073600000000	241868800000	22.00	32.00	.042	.057	4	4	10.86
55		313750596090000	2147483648			34282496000	2304000000000	2764800000000	322521600000	22.00	32.00	.042	.057	4	4	10.86
110		470625894135000				51423744000	3456000000000	4147200000000	483974400000	22.00	32.00	.042	.057	4	4	10.86
55		941251788270000	4294967296			68847984000	4608000000000	5529600000000	645848000000	22.00	32.00	.042	.057	4	4	10.86
110		1411877682405000				103271968000	6912000000000	8376000000000	968224000000	22.00	32.00	.042	.057	4	4	10.86
55		2823755364810000	8589934592			137695936000	11520000000000	13824000000000	1612448000000	22.00	32.00	.042	.057	4	4	10.86
110		4235633047215000				206543872000	17280000000000	20736000000000	2418688000000	22.00	32.00	.042	.057	4	4	10.86
55		8471266094430000	17179869184			275387744000	23040000000000	27648000000000	3225216000000	22.00	32.00	.042	.057	4	4	10.86
110		12706899141645000				413081664000	34560000000000	41472000000000	4839744000000	22.00	32.00	.042	.057	4	4	10.86
55		25413798283290000	34359738368			550767328000	46080000000000	55296000000000	6458480000000	22.00	32.00	.042	.057	4	4	10.86
110		38120697424935000				826151040000	69120000000000	83760000000000	9682240000000	22.00	32.00	.042	.057	4	4	10.86
55		76241394849870000	68719476736			1101302080000	115200000000000	138240000000000	16124480000000	22.00	32.00	.042	.057	4	4	10.86
110		114362092274805000				1651953120000	172800000000000	207360000000000	24186880000000	22.00	32.00	.042	.057	4	4	10.86
55		228724184549610000	137438953472			2203906240000	230400000000000	276480000000000	32252160000000	22.00	32.00	.042	.057	4	4	10.86
110		343086276824415000														

History of the Church

The Given letter is light &c. It is

Common writing cloth
July 13, 1883.
J. F. Ott

THOMAS A. EDISON,
No. 65 FIFTH AVENUE

Common writing cloth
July 13, 1883.
J. F. Ott

CHAS. J. JONES, EDITOR

This mark was made with cotton on drum

July 13, 1883
J. F. Ott

This mark was made with the paper laying direct
on metallic drum used no chemicals

July 18, 1883
J. F. Ott

Best Soda on felt
slightly moist

July 18, 83
J. F. Ott

Best of all

This mark was made with
cotton on drum and slightly moistened with Borate
Soda makes plain and straight line

July 18, 1883
J. F. Ott

This mark was made with the paper laying direct
on metallic drum used no chemicals

July 14,
1883
J. F. Ott

This mark is not so straight as with the
yellow paper because it has lower resistance

Set on drum
rotated with ink

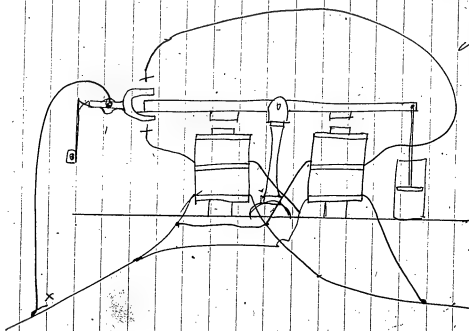
NEW YORK

THE

FOR S.S.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE

Check the machine
3/18/83 with file



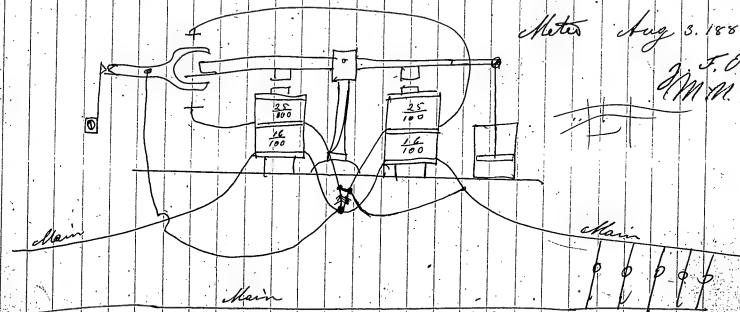
~~Notes~~
 Notes Aug 3, 1883
 J. F. Ott
 M. H. Fore

$$\begin{array}{r} 3.5 \\ 16 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 16 \\ 16 \\ \hline 32 \\ 9 \\ \hline 23 \end{array}$$

Meters Aug 3. 1883

J. O.
J. M. F.

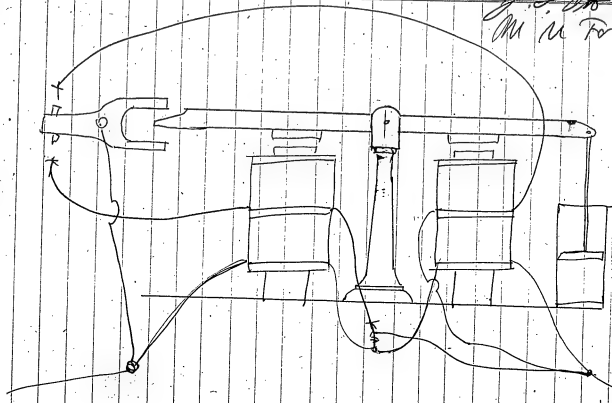


Notes Aug 3. 1883.

J. F. H.
In Force 25.50

$\frac{16}{32}$

1900



Lamps	Time	Rev	Dif
30	minutes	29	> 4
25	1	25	> 4 1/2
20	1	20 1/2	> 5
15	1	15 1/2	> 5 1/2
10	1	10	> 5
5	1	5	> 1 1/3
4	1	3 3/8	> 1
3	1	2 2/3	> 1 1/4
2	1	1 1/2	
1	1	Sticks	
1	1	Sticks	
2	1	1 1/2	
3	1	2 1/3	
4	1	3 1/3	
5	1	4 1/3	
10	1	10 1/2	
15	1	16	
20	1	22	
25	1	27 1/2	
30	1	33	

Aug 8. 1883

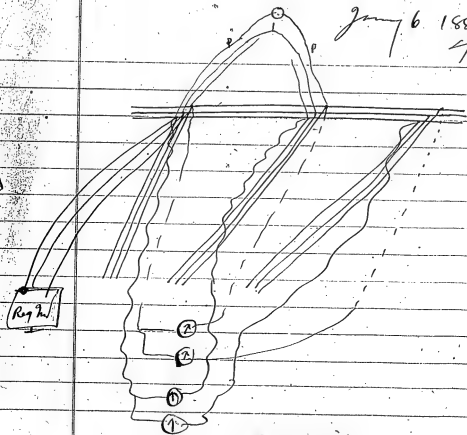
J. F. Allen
M. A. Foster

UNBOUND NOTES AND DRAWINGS

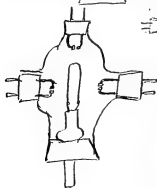
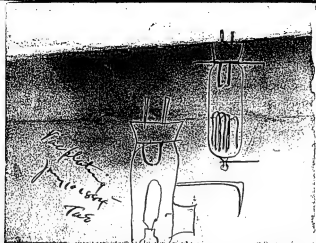
1884

Electric Distribution?

July 6 1884
Lake

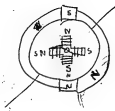
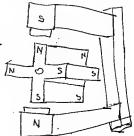


Detection or Sample water,

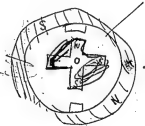


One Miller
J. F. Miller
Mud

May 3. 84

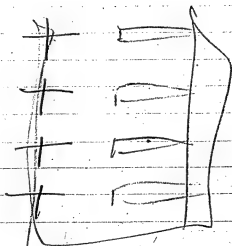
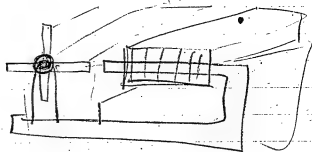
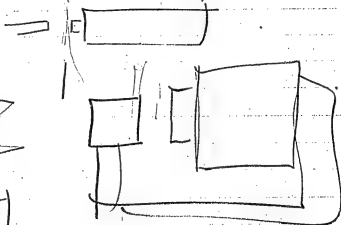


Mud

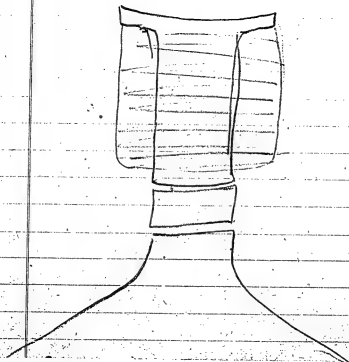
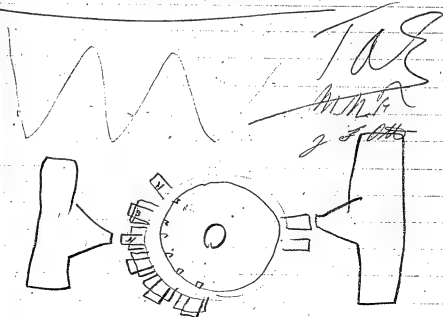


New York May 8 1884

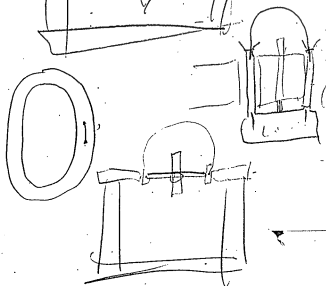
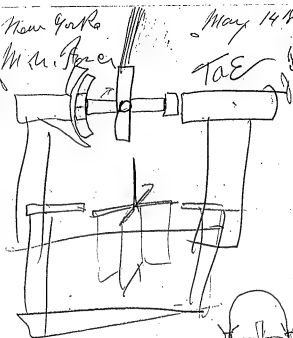
TAE
Myra
J. F. M.
Car Miller



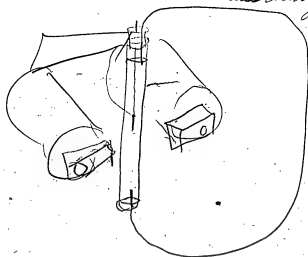
New York May 5th 1884
Dear Mother



New York
M. M. Lane
Case killing
May 14 1864
TAE
J. F. Otto



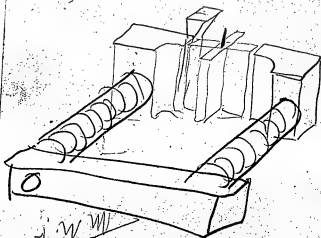
May 14 1864
M. M. Lane
J. F. Otto
Case killing



Made and tried
May 14 1864

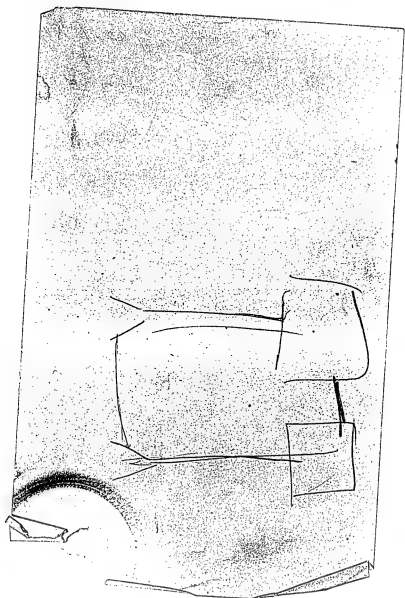
May 14 1884

J. F. Otto
Case Milling



W. M.
326





THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

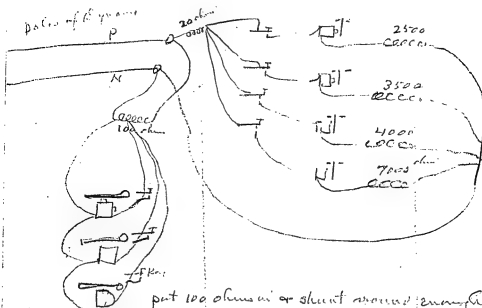
NEW YORK

May 22 1884

Mudger
J. E. Ott

John Please try the following experiment:

Toward to work local sounders and also work
the single wires of ~~4000~~ 2500 to 7000 ohms
each from a telephone. So arrange it that
let me know of these sounders ~~the~~ lines that
interfere with each other.

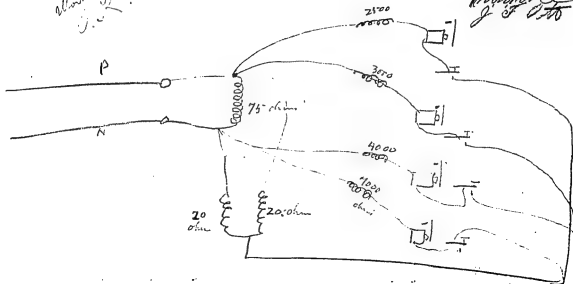


put 100 ohms or shunt enough resistance
to give good current to the sounder then see if the
sounders interfere with each other

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK May 22 1884

Wm. S. G. J. & Co.



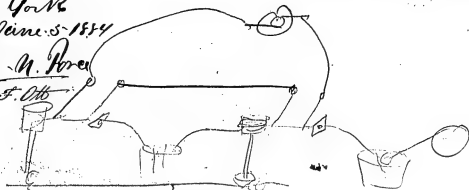
This is arranged so as to send out positive or negative currents. The lines on top of 75 ohm coil will get current in one direction while those on bottom of 75 ohm coil will get current in opposite direction.

Arrange all these circuits so you can change Relays & Keys etc from one experiment to the other quickly. Then let me know when you are ready to show it to me.

Edison

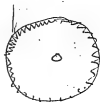
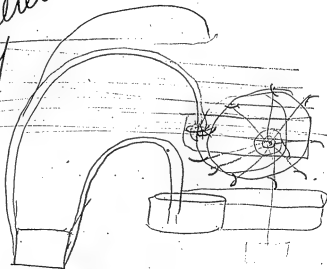
New York
June 5-1854

W. M. Brewster
J. F. Otto



Amos's mine

Electric Meter
June 7 1889
Q/S

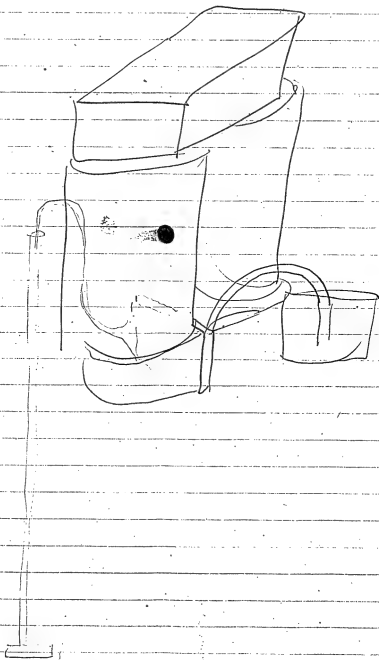


11

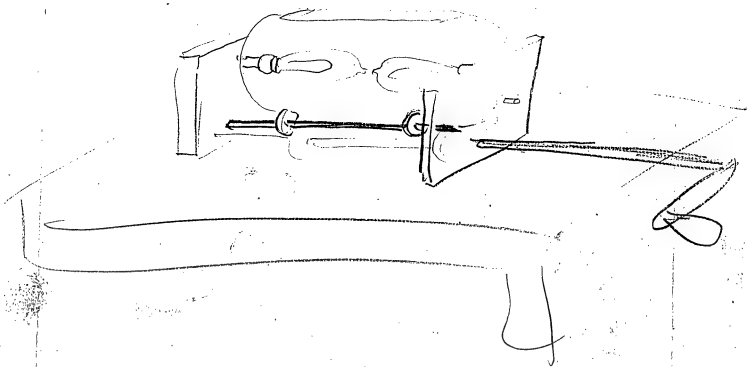
3 1/2



100



Nov. 18th 84

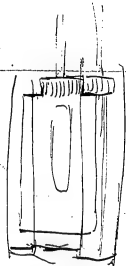


524
25

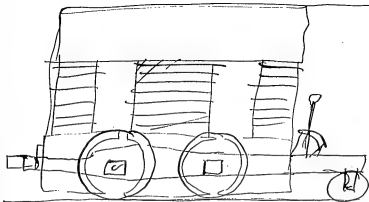
479 MC p Sulphate lign.

145th Ordinary " "

Sept. 1. 05



offered
glenn
and
in
the
area



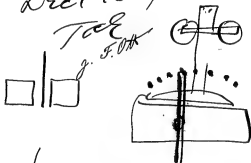
Electric locomotive,
Nov 24 1884
TAE

To Mr. S. F. ...
THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

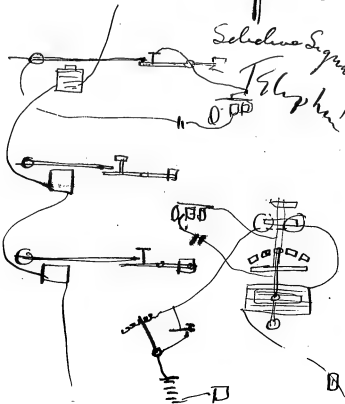
NEW YORK,188

Dec 1 1884

TAE
S. F. ...



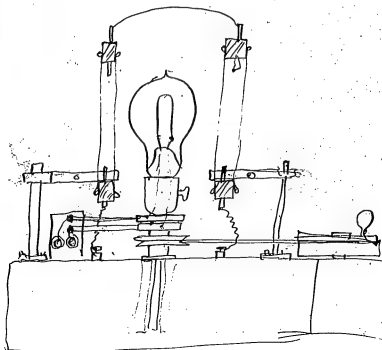
Selected Signals
Telephon



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE

NEW YORK, Dec 1 1884

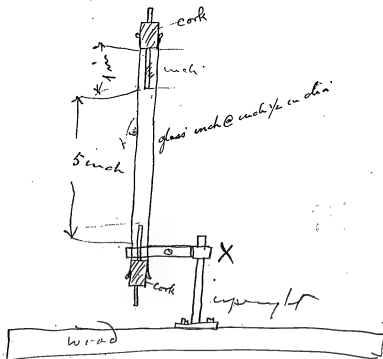
J. F. C.
M. H. F.



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK, Dec 1 1884

J. F. C.
M. H. F.

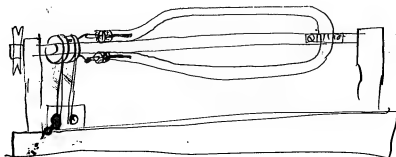


THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

1854-12-01

NEW YORK, *Dec 1* 1884

J. F. M.



THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

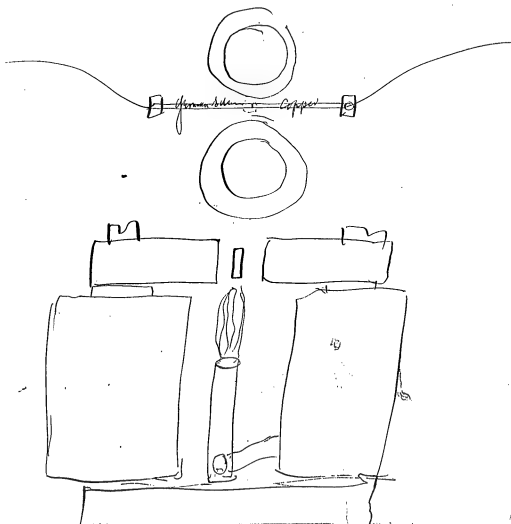
Very best of the Edison
CABLE ADDRESS—EDISON, NEW YORK.

Per S. S. _____

Via _____

NEW YORK *Dec 1* 188*9*

Thomas Edison



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

CABLE ADDRESS—EDISON, NEW YORK.

Per S. S. _____

Via _____

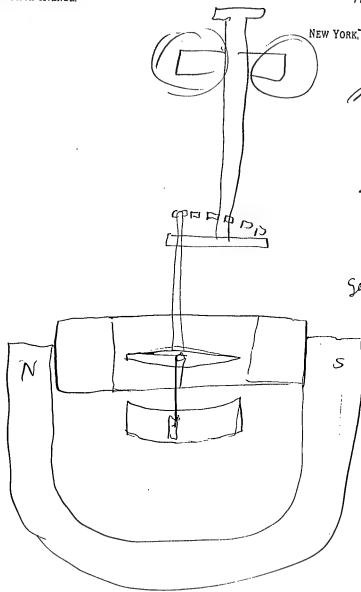
NEW YORK, Dec 2 188 4

J. S. OH

M M time

Tag

Solution ~~all~~
Tel. No. 1



UNBOUND NOTES AND DRAWINGS

1885

November 1
Jan 10 - 1905

Experiment on secondary battery

Ordinary Planté cell - plates $2" \times 3\frac{1}{2}"$
 $\frac{1}{4}"$ apart - 3 cells used, each consisting
of 6 plates - 3 + 4 3 -. H_2SO_4 of 10 %

bells charged in multiple arc
in series with 3 - 16 c.f. lamps also
in multiple arc, at dull red.

Action gradual - plates looked
uniform.

Charged for 2 hours and then
discharged through lamp of 1 c.f.
requiring about 4 volts to bring it
up to candle power. (cells in series)

The lamp was very bright
for an instant - then fell to dull
red and went out in 2 minutes

Recharged in series and in
opposite direction for 2 hours at
about same rate as before.

Lamp was very bright for
3 minutes - dull red for 2 minutes
and then went out

Plates were alternately + -

Also tried the following arrangement
For the positive a stick of dense
carbon and the negative a cylinder
of perforated zinc.

The solution is composed of
 $\frac{1}{2}$ sat. sol. sulphate of zinc
 $\frac{1}{2}$ " " " " " Manganese,

Charged for 4 hours with current
from 2-16 c.f. lamps (in multiple arc)
3 cells in series.

Lamp used in discharge same
as before - dull red for 30 minutes.

Battery appears fairly constant
but I think internal resistance
too high - carbon should be more
porous to allow more surface for
the oxide of manganese to form.

Jan 21

Recharged lead battery with
one lamp at about 12 c.f. in series
(cells 3 in series).

After 3 hours charge, ran
lamp for 5 minutes - very bright
at first but fell rapidly.

Used 2 cells lead battery in series.
 charged of $\frac{1}{4}$ hour and ran
 lamp bright red for 5 minutes.

Experiment on possibility of different
 special carbons.
 Samples soaked in water for
 44 hours and gain of weight taken.

1. Sago

Before = 53.000 Gms
 after = 112.000 "
 Gain % = 112

2. Wheat Flour

Before = 30.000 "
 after = 63.000 "
 Gain % = 110

3. White Indian Meal

Before = 45.00 "
 after = 92.00 "
 Gain % = $104\frac{1}{2}$

4. Rye Flour

Before = 33.000 "
 after = 56.000 "
 Gain % = $69\frac{1}{2}$

5 Yellow Indian Meal

Before = 15.000 Gms

After = 26.000

Gain of = 73 2/3%

6 Coffee

Before = 1.500 "

After = 3.000 "

Gain of = 100

7 Buckwheat

Before = 27.000 "

After = 55.000 "

Gain of = 103 1/3%

8 Oat Meal

Before = 44.000 "

After = 75.000 "

Gain of = 70 1/2%

Feb 2.

Recharged lead battery for 4 hours - ran fairly for 5 minutes

Tried battery of zinc and copper plates in solution of Potassium but it does not prove a success.

Iodide of bismuth forms on bismuth plate
and is dissolved by Potassium Iodide.

From this the bismuth is reduced by
the zinc plate leaving zinc Iodide
in the solution from which the zinc
is at once precipitated by Potassium
salt.

Bismuth & zinc plates in solution of
Iodide of zinc gave good result
on a very rough test.

Feb. 3.

Made battery on this principle
with same arrangement of plates
as lead battery.

Very slight current must be
used in charging or else zinc comes
down too fast and both falls away
and short circuits the plates.

After 2 hours charge - ran lamp
good red heat for 10 minutes and
kept it perceptibly red for 30.

Appears to be improved by addition
of zinc sulphate.

E. M. 3 is good and resistance low
but keeps getting short circuited by
shocks of metal from zinc plate.

Feb 4.

Made battery of zinc - carbon in
zinc & manganese sulphates.

Carbon was a rod of dense carbon
in flannel bag surrounded by fine
charcoal.

Is not good for any thing.

Made zinc - copper in zinc iodide
with flannel between plates in
order to prevent short circuits but
found the metal crept through it.

Feb 5.

In zinc - carbon battery, replaced
carbon by lead cylinder perforated
and full of spongy lead.

Poor result - probably too much
local action in spongy lead.

also replaced carbon stick by
stick of carbon surrounded by

1 7
pulverized carbonized anthracite and
found result about same as with
lead electrode.

Used small battery of plates of
copper and cadmium in Iodide
of cadmium also sulphate-bromide
and mixture of the three - also same
acid with acetic.

Result fair but not promising
as free Iodine forms.

Repeated experiment with copper
and zinc in Iodide of zinc acid
with acetic. Copper plate very large
to allow surface for Iodine to act.

Very good result on rough
experiment.

Changed with one cell for
30 minutes gave constant E.M.F.
for 15 minutes, then fell and
again remained constant for 10
minutes and then was used
up.

In solution of sulphates of Zinc and Manganese, tried the following.

N^o 1 = plates of Zinc & Carbon

- " 2 = " Zinc and Zinc
 " 3 = " " 4 porous cups of ^{and Manganese salt} fine Carbon
 " 4 = " " + Lead
 " 5 = " " + Tin
 " 6 = " " + Iron
 " 7 = " " + Cadmium
 " 8 = " " + Copper
 " 9 = " " 4 porous cups of fine carbon
 " 10 = " " + Antimony
 " 11 = " " 4 porous cups of red Lead
 " 12 = " " + Brass.

Charged for 1 hour in series,
 Discharge

N^o 1 = 150

N^o 7 = 0

" 2 = 0

" 8 = 100

" 3 = 0

" 9 = 100

" 4 = 25

" 10 = 35

" 5 = 15

" 11 = 15

" 6 = 15

" 12 = 140

N^o 1 & 9 lasted 30 minutes

" 8 & 12

" 5 "

with same solution also tried,

Plati. of Zinc & porous cup of plumbago.
action fair

Plati. of Zinc and porous cup of oxide
of Iron (magnetic)

good action but falls away
rapidly

Plati. of Zinc and Platinum.

Very strong action for an instant.

changed following in series.

N^o 1 = Saturated Iodide of Zinc

" 2 = Solute

" 3 = Saturated " " + acetic acid

" 4 = Solute

" 5 = Iodide + Sulphate Zinc + Sulph Manganese

" 6 = Iodide Zinc + acetate of cobalt

" 7 = acetate of Zinc

" 8 = " " " + Iodide of Zinc

" 9 = Sulph Aluminium, Iodide Zinc + acetic acid

" 10 = Iodide Zinc + Alcohol

" 11 = " " + Sulphate Cadmium

" 12 = " " + Iron Ammonium bitrate

Deflections after 30 minutes change

N^o 1 = 20

N^o 7 = 10

" 2 = 10

" 8 = 30

" 3 = 40

" 9 = 20

" 4 = 10

" 10 = 10

" 5 = 60

" 11 = 25

" 6 = 10

" 12 = 10

Made large battery with Zinc
+ 6 open plates with solution of
Iodide of Zinc - Sulphate of Zinc
and Sulphate of Manganese.

5 cells of this battery will run the lamp at bright red but the battery has several faults.

The E.M.F. is low.

The deposits are not firm and are liable to fall away.

When charged the copper plate becomes coated with a white deposit probably Iodate of copper.

In discharge, this is not entirely reduced and a black coat of Iodide remains. After one or two charges, this cracks and falls off spoiling the solution.

Tried plates of

Zinc & Lead in Iodide of Lead
Copper " " " " "

Zinc " Iron " " " Iron
Copper " " " " "

Results very poor and the Iron solution very nasty to handle.

Made large battery for practical test of Iodide solution.

Battery consisted of large flattened cylinders of sheet copper in series of which was suspended a plate of perforated amalgamated zinc.

The copper plate was coated with electro deposited copper to give spongy surface.

Solution

$\frac{1}{2}$ Sulphate of Zinc saturated

$\frac{1}{2}$ Iodide " "

slightly acid with acetic acid.

Charged 5 cells in series for 4 hours.

Brought lamp to bright red for 30 minutes and then fell off rapidly.

Tried special test of small cells as follows.

Nº 1 solution of Iodide of Zinc

Sulphate " "

" " Manganese

N^o 2 Solution of sulphate of Zinc
 " " Manganese.

Copper and Zinc plates used in both.

Discharge after charging 1 hour.

N^o 1 50 for an instant

35 " 15 minutes

30 " 2 "

Then fell off slowly and was
 entirely discharged in 30 minutes.

N^o 2 = 30 for an instant

20 " 10 minutes

at this point the deposit fell off
 and the action ceased

Tried Zinc & Carbon in Iodide of Zinc
 but the result is poor as free Iodine
 forms

Tried Copper and Mercury in solution
 of Zinc Iodide & Sulphate.
 Not very promising

Tried same electrodes in sulphate
 of Copper - No action.

Number 2

Battery composed of two copper plates in acid solution of Zinc iodide gives good E. M. F. at first but is not at all constant. Iodide of copper forms on one plate and metallic Zinc on the other.

There is a slight primary action between copper and zinc in solution of Iodide of Zinc either neutral, acid or mixed with Sulphate of Zinc, and the copper becomes coated with a black deposit.

Neither Zinc nor copper alone, caused any deposit.

In order to stop the initial primary action the Zinc was amalgamated but this did not effect the object and made no difference in the final action except that the deposit was made more uniform and less spongy metal formed.

With both the plates amalgamated there is no primary action and the battery will not change at all.

Experiment with copper and zinc plates
in solution consisting of
200 c.c of water - 1 gram Iodide of Zinc, and
the following

- N^o 1 = + bitric acid
 " 2 = + acetic "
 " 3 = + 2 grams Sulphate of Zinc & bitric acid
 " 4 = + " " " " & acetic "
 " 5 = + 1 " chromic acid
 " 6 = + Nitrate of Cobalt & bitric "
 " 7 = + 1 gram chromic Sulphate
 " 8 = + 1 " chloride of Cobalt
 " 9 = + 1 " Iodide " Cadmium
 " 10 = + 1 " Acetate " Cobalt
 " 11 = + 1 " Pyrogallie acid
 " 12 = + 1 " Sugar

Charged for 45 minutes in series.
Discharged through galvanometer and
obtained the following deflections

- | | |
|-----------------------|-----------------------|
| N ^o 1 = 30 | N ^o 7 = 40 |
| " 2 = 28 | " 8 = 50 |
| " 3 = 50 | " 9 = 20 |
| " 4 = 50 | " 10 = 20 |
| " 5 = 15 | " 11 = 10 |
| " 6 = 40 | " 12 = 15 |

Number 2.

Made a battery in which the electrodes were, a cylinder of Zinc amalgamated and a porous cup filled with bits of carbonized Anthracite.

The solution was mixed sulphate of Zinc and Manganese - half and half - saturated.

Three cells of this in series will run the lamp at good candle power, but when large enough to last for any length of time, weighs too much.

The lead battery first mentioned after repeated charging and discharging and after the plates had been subjected to electrolytic action in a solution of Litharge in caustic soda - ran the lamp at full candle power for 30 minutes, with one hour's charging.

Constructed a battery as follows. In a tube of copper was placed a solution of $\frac{1}{2}$ Iodide of Zinc $\frac{1}{3}$ Sulphate of Zinc + $\frac{1}{6}$ Sulphate of Manganese - all saturated.

In this was suspended a rod of amalgamated zinc.

Six cells in series will give about 20 minutes at full candle power with two hours charging.

The object of this experiment was to construct a battery in which the vessel containing the solution should be one of the elements of the battery and this could be done very well as the action is nearly all on the surface of the copper. The battery weighed about five pounds.

Tried battery of copper and zinc plates in solution of caustic soda. High electromotive force at first, but falls rapidly.

Tried battery of mixed sulphate of zinc and manganese, in which the electrodes were a plate of amalgamated zinc and a piece of porous sago carbon. This gives very fair results.

but would have to be quite bulky to run the lamp for several hours.

Summary.

I shall here discuss the three batteries which of all those tried have proved the best and they will be mentioned in the order of their comparative values.

1. ordinary Plante cell.

Platis should be cleaned with sand paper and left 24 hours in very dilute Nitric acid.

Then connected up, washed with clean water and exposed to the action of a strong current in a solution of Litharge in caustic Soda; the direction of the current being several times reversed.

Remove from this and wash to remove all traces of the alkali solution and then charge in dilute sulphuric acid (about 10%). Platis must be charged and discharged and recharged with a reverse current 7-7.

and the percentage of acid should be from time to time increased till it is about 20.

The object is to have the action strike in as far as possible in order that the plates may take a good charge. The actual result is, that about the time the battery is good for any thing, the plates are ready to fall to pieces. This means that if you would have a good number of lamp hours from the battery you must increase the surface of the plates and this of course means increase of weight.

2. Zinc and Carbon battery.

The best solution for this is
 $\frac{1}{2}$ Sulphate of Zinc saturated.
 $\frac{1}{2}$ " " Manganese "

The Zinc should be amalgamated and the Carbon should be porous.

If you attempt to use bits of anthracite or other Carbon they should be packed in a porous

cup rather than a bag as a bag is apt to stretch and allow the pieces to separate.

If a porous carbon, as Sago, is used, the pores are apt to become clogged and for this reason the charging should be as slow as possible.

The carbon is of course the oxygen pole in charging.

2 Zinc and Copper battery.

Best solution is

$\frac{1}{2}$ Iodide of Zinc saturated.
 $\frac{1}{2}$ Sulphate " "
 $\frac{1}{6}$ " Manganese "

and a few drops of bitric or acetic acid.

The zinc should be amalgamated and the copper be plated with copper to secure a spongy surface.

The copper is the oxygen pole.

The battery must be charged

slowly and is not easy to manage as a slight change in the nature of the solution or too strong a current in charging spoils it.

Free Iodine forms slowly and this wears away the fine plate.

All of the batteries are open to one serious objection.

During the process of charging deposits form on the plates.

A slight shaking causes these deposits to fall away and when this happens the action at once stops and the solution must be renewed and the battery cleaned.

A primary battery will stand any amount of shaking and is indeed improved by it as the evolved gases are prevented from sticking to the electrodes.

Mon. 8/85

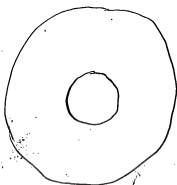
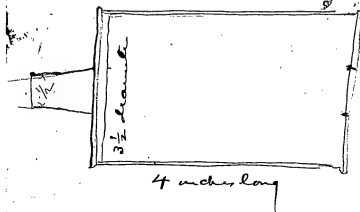
Thomas P. L. L. L.

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,

Form L, 1000-4-31-'94.

New York, *July 6* 188*6*

6 of this size



also 6 of $3\frac{1}{2}$ dia

+ 6 inches long

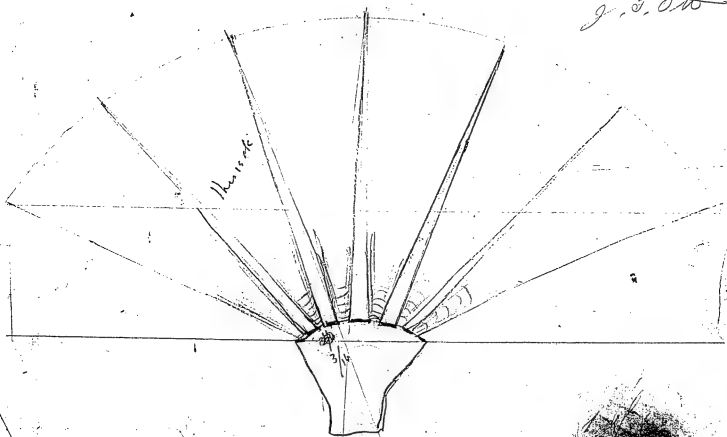
also 6 of $3\frac{1}{2}$ dia + 2 inches long

*make this of the thickest iron
that can be gotten. The mis bet.*

Do. 662

1855

Feb 8 85
J. F. O'K



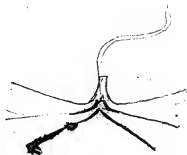
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Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

Form 31.
W. D. RICH,
SUPT OF CONSTRUCTION.

Feb 9 1885

J. F. V. H.

Address reply to _____



Spun 10 inch
space of their brass

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, 25 April 1885

John

Have been experimenting on
recording on Ktalograph fine weight of new
wire 10,000 resting on regular paper gives
splendid mark. please have little
mercury cup made of brass into which a
globule mercury is placed have a pin about
 $\frac{1}{32}$ dia put in middle extending above
mercury then make wire marking wire
bend end around so it fits the pin rather
loose & lays down on the paper
on drum of its own weight -
On the End of the long lever put
couple pins with the smallest lost
motion between them to move the
wire back & forward on the paper
you will understand by the
drawing - get this ready by
tomorrow night sure -

also get the Ktalograph that
works a sounder ready using

7

Finished

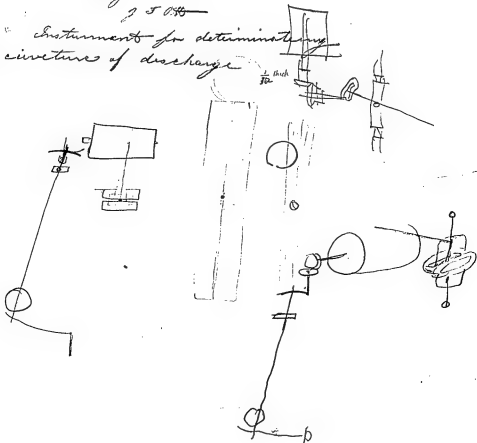
UNBOUND NOTES AND DRAWINGS

1886

May 20. 86

~~250th~~

Instrument for determining
the curvature of discharge



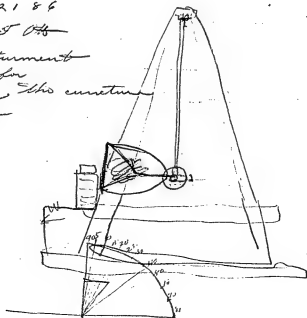
Sketches &
Notes

May 21 86

J. S. O'H.



Instrument
for
determinating the curvature
of discharge

1886-05-21



THOS. A. EDISON CONSTRUCTION DEPT.
65 FIFTH AVENUE,
NEW YORK.

Appropriation of time of _____
employed as a _____ for week ending,
Thursday, _____ 188

TOWN.	NO. OF DAYS.	RATE PER DAY.	AMOUNT.	TOTAL SALARY FOR WEEK.
				
				

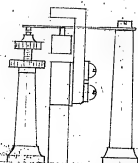
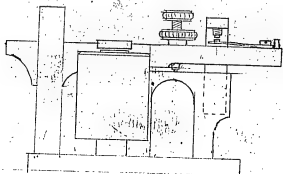
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1886

"Telegraph -
Phonoplex" 2.

June 20, 86 Phonoplex

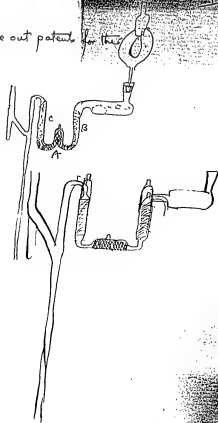
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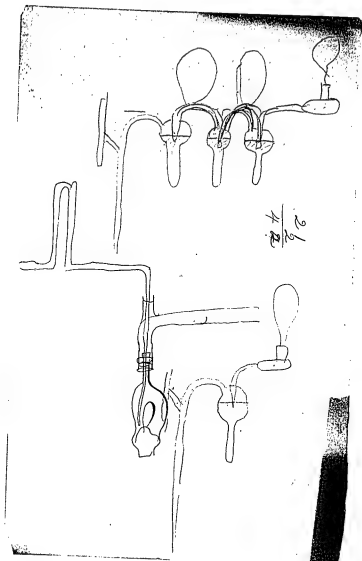
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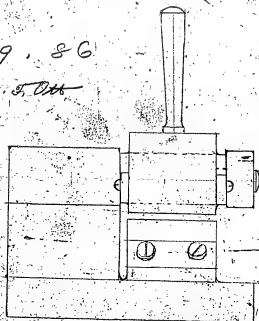
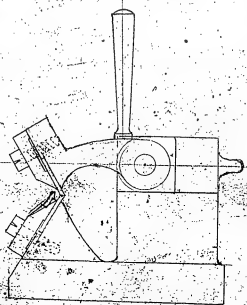
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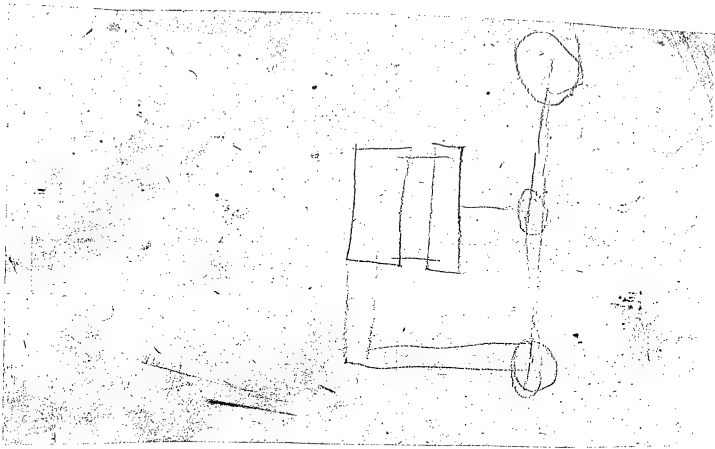
Take out patent for this

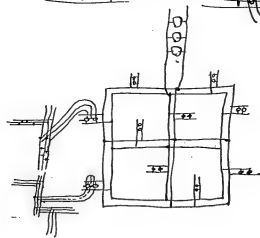
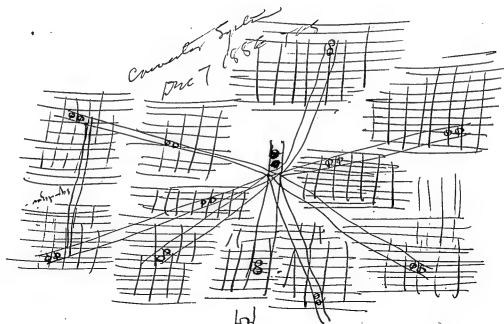




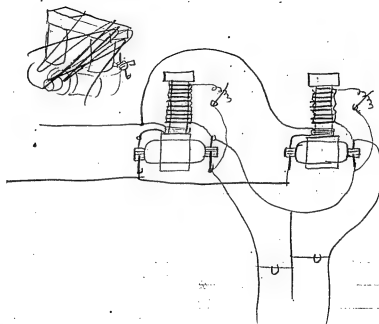
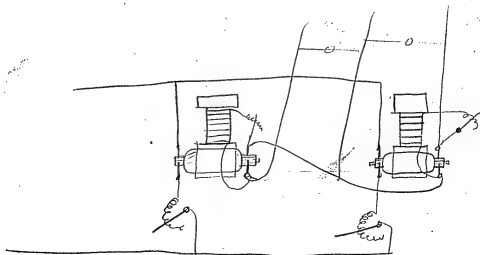
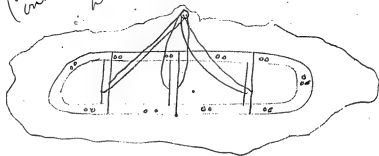
Oct 9. 26
J. S. Allen



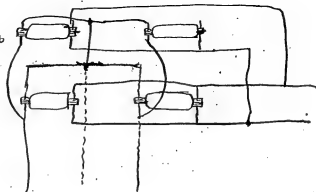




Converter System
Dec 7 1884

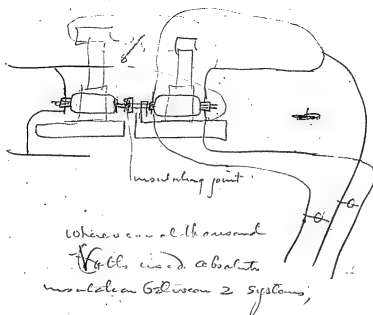
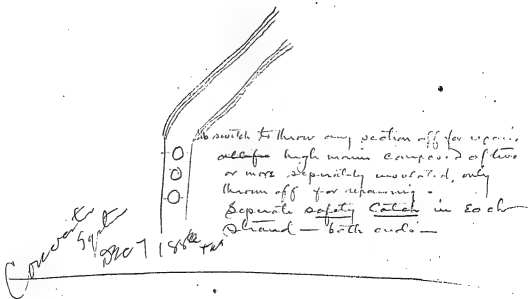


Counter Engine
Dec 16 1944
T. J. 20



at station to put in Carrels

connect field of low tension then armature then it
starts up as motor ~~running~~ being run by line, then
throw high armature on -

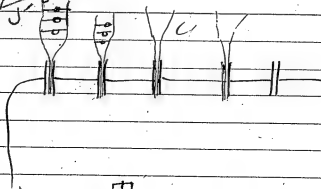


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Dec 7/80



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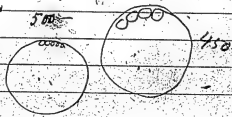
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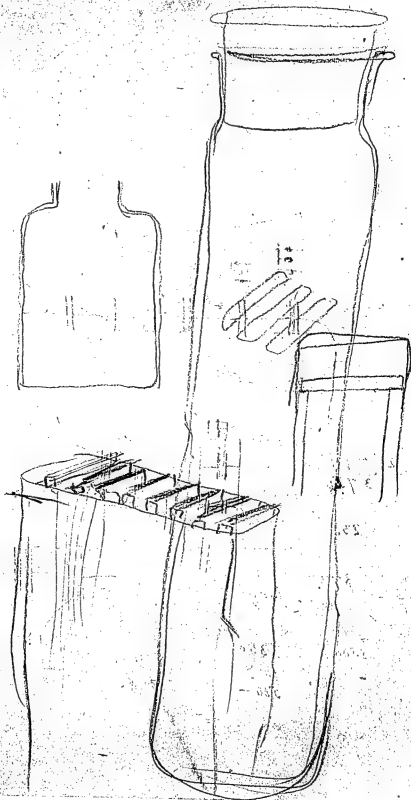
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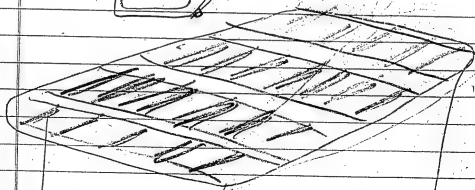


5/2/84 notes



Sketch + notes

1896



1896
109
350

1896
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15-13

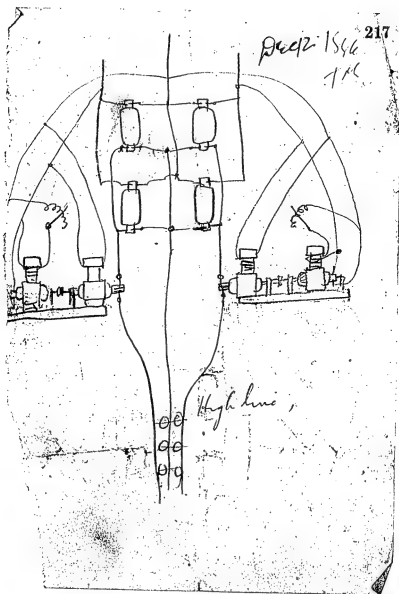
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Marlin



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360/500

60/500/8

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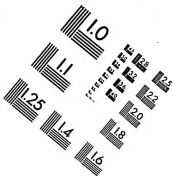
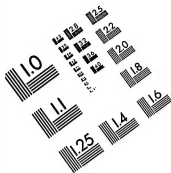
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